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IONOSPHERIC DATA

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NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
WASHINGTON, D. C.

IONOSPHERIC DATA

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SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1949, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Fifth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Stockholm, 1948, and given in detail on pages 2 to 10 of the report CRPL-F53, "Ionospheric Data," issued January 1949.

For symbols and terminology used with data prior to January 1949, see report IRPL-C61, "Report of International Radio Propagation Conference, Washington, 17 April to 5 May, 1944," previous issues of the F series, in particular, IRPL-F5, CRPL-F24, F33, F50, and report CRPL-7-1, "Preliminary Instructions for Obtaining and Reducing Manual Ionospheric Records."

Following the recommendations of the Washington (1944) and Stockholm (1948) conferences, beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

In addition to the conventions for the determination of medians given in Appendix 5 of Document No. 293 E of the Stockholm conference, which are listed on pages 9 and 10 of CRPL-F53, the following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given on pages 2-9 of CRPL-F53 (Appendixes 1-4 of Document No. 293 E referred to above).

a. For all ionospheric characteristics:

Values missing because of A, B, C, F, L, M, N, Q, R, S, or T (see terminology referred to above) are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F2 (and h'E near sunrise and sunset) missing for this reason are counted as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of D are counted as equal to or greater than the upper limit of the recorder.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic. This practice represents a change from that listed in issues previous to CRPL-F78.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency count of the recorder.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If only four values or less are available, the data are considered insufficient and no median value is computed.

2. For the F2 layer, if only five to nine values are available, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as there are at least five values, the median is not considered doubtful.

3. For all layers, if more than half of the values used to compute the median are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

The tables and graphs of ionospheric data are correct for the values reported to the CRPL, but, because of variations in practice in the interpretation of records and scaling and manner of reporting of values, may at times give an erroneous conception of typical ionospheric characteristics at the station. Some of the errors are due to:

- a. Differences in scaling records when spread echoes are present.
- b. Omission of values when f_oF_2 is less than or equal to f_{or1} , leading to erroneously high values of monthly averages or median values.
- c. Omission of values when critical frequencies are less than the lower frequency limit of the recorder, also leading to erroneously high values of monthly average or median values.

These effects were discussed on pages 6 and 7 of the previous F-series report IRPL-F5.

Ordinarily, a blank space in the fEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of f_oE . Blank spaces at the beginning and end of columns of $h'F_1$, f_oF_1 , $h'E$, and f_oE are usually the result of diurnal variation in these characteristics. Complete absence of medians of $h'F_1$ and f_oF_1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

| Month | Predicted Sunspot Number | | | | | |
|-----------|--------------------------|------|------|------|------|------|
| | 1951 | 1950 | 1949 | 1948 | 1947 | 1946 |
| December | | 86 | 108 | 114 | 126 | 85 |
| November | 52 | 87 | 112 | 115 | 124 | 83 |
| October | 52 | 90 | 114 | 116 | 119 | 81 |
| September | 54 | 91 | 115 | 117 | 121 | 79 |
| August | 57 | 96 | 111 | 123 | 122 | 77 |
| July | 60 | 101 | 108 | 125 | 116 | 73 |
| June | 63 | 103 | 108 | 129 | 112 | 67 |
| May | 68 | 102 | 108 | 130 | 109 | 67 |
| April | 74 | 101 | 109 | 133 | 107 | 62 |
| March | 78 | 103 | 111 | 133 | 105 | 51 |
| February | 82 | 103 | 113 | 133 | 90 | 46 |
| January | 85 | 105 | 112 | 130 | 88 | 42 |

WORLD - WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the
Commonwealth Observatory:
Brisbane, Australia
Canberra, Australia
Hobart, Tasmania

Commonwealth of Australia, Department of External Affairs:
Macquarie I.

Australian Department of Supply and Shipping, Bureau of Mineral
Resources, Geology and Geophysics:
Watheroo, Western Australia

Defence Research Board, Canada:

Baker Lake, Canada
Churchill, Canada
Fort Chimo, Canada
Ottawa, Canada
Prince Rupert, Canada
St. John's, Newfoundland
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiman University, Taipeh,
Formosa, China:

Formosa, China

French Ministry of Naval Armaments (Section for Scientific Research):

Dakar, French West Africa
Fribourg, Germany

National Laboratory of Radio-Electricity (French Ionospheric Bureau):

Domont, France
Poitiers, France
Terre Adelie

The Royal Netherlands Meteorological Institute:

De Bilt, Holland

Radio Regulatory Commission, Tokyo, Japan:

Akita, Japan
Tokyo (Kokubunji), Japan
Wakkanai, Japan
Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of Scientific
and Industrial Research:

Christchurch, New Zealand

Norwegian Defense Research Establishment, Kjeller per Lillestrom, Norway:

Oslo, Norway
Tromso, Norway

South African Council for Scientific and Industrial Research:

Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Laboratory of Electronics, Chalmers University of Technology,

Gothenburg, Sweden:
Kiruna, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:

Schwartzenburg, Switzerland

United States Army Signal Corps:

Adak, Alaska
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Anchorage, Alaska
 Baton Rouge, Louisiana (Louisiana State University)
 Fairbanks, Alaska
 Huancayo, Peru (Instituto Geofisico de Huancayo)
 Maui, Hawaii
 Narsarsuaq, Greenland
 Point Barrow, Alaska
 Puerto Rico, West Indies
 San Francisco, California (Stanford University)
 Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 to 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

IONOSPHERIC STORMINESS AT WASHINGTON, D.C.

Table 85 presents ionosphere character figures for Washington, D. C., during November 1951, as determined by the criteria given in the report IRPL-R5, "Criteria for Ionospheric Storminess," together with Cheltenham, Maryland, geomagnetic K-figures, which are usually covariant with them.

RADIO PROPAGATION QUALITY FIGURES

Table 86 gives provisional radio propagation quality figures for the North Atlantic and North Pacific areas, for 01 to 12 and 13 to 24 GCT, October 1951, compared with the CRPL daily radio disturbance warnings, which are primarily for the North Atlantic paths, the CRPL weekly radio propagation forecasts of probable disturbed periods, and the half-day Cheltenham, Maryland, geomagnetic K-figures.

The radio propagation quality figures are prepared from radio traffic and ionospheric data reported to the CRPL, in a manner basically the same as that described in IRPL-R31, "North Atlantic Radio Propagation Disturbances, October 1943 through October 1945," issued February 1, 1946. The scale conversions for each report are revised for use with the data beginning January 1948, and statistical weighting replaces what was, in effect, subjective weighting. Separate master distribution curves of the type described in IRPL-R31 were derived for the part of 1946 covered by each report; data received only since 1946 are compared with the master curve for the period of the available data. A report whose distribution is the same as the master is thereby converted linearly to the Q-figure scale. Each report is given a statistical weight which is the reciprocal of the departure from linearity. The half-daily radio propagation quality figure, beginning January 1948, is the weighted mean of the reports received for that period.

These radio propagation quality figures give a consensus of opinion of actual radio propagation conditions as reported by the half day over the two general areas. It should be borne in mind, however, that though the quality may be disturbed according to the CRPL scale, the cause of the disturbance is not necessarily known. There are many variables that must be considered. In addition to ionospheric storminess itself as the cause, conditions may be reported as disturbed because of seasonal characteristics such as are particularly evident in the pronounced day and night contrast over North Pacific paths during the winter months, or because of improper frequency usage for the path and time of day in question. Insofar as possible, frequency usage is included in rating the reports. Where the actual frequency is not shown in the report to the CRPL, it has been assumed that the report is made on the use of optimum working frequencies for the path and time of day in question. Since there is a possibility that all disturbance shown by the quality figures is not due to ionospheric storminess alone, care should be taken in using the quality figures in research correlations with solar, auroral, geomagnetic, or other data. Nevertheless, these quality figures do reflect a consensus of opinion of actual radio propagation conditions as found on any one half day in either of the two general areas.

Note. The North Pacific quality figures have been marked "low weight" beginning with August 1951. This is not because of any discontinuity in the accuracy of the individual reports on which the figures are based nor in the method of derivation of the indexes. However, since the number of suitable reports available for this work has decreased appreciably during 1950 and 1951, it seems appropriate to emphasize now that the North Pacific quality figures do not have as firm a basis as the North Atlantic quality figures.

OBSERVATIONS OF THE SOLAR CORONA

Tables 87 through 89 give the observations of the solar corona during November 1951 obtained at Climax, Colorado, by the High Altitude Observatory of Harvard University and the University of Colorado. The data are listed separately for east and west limbs at 5-degree intervals of position angle north and south of the Solar Equator at the limb. The time of observation is given to the nearest tenth of a day, GCT.

Table 87 gives the intensities of the green (5303Å) line of the emission spectrum of the solar corona; table 88 gives similarly the intensities of the first red (6374Å) coronal line; and table 89, the intensities of the second red (6702Å) coronal line; all observed at Climax in November 1951.

The following symbols are used in tables 87 through 89: a, observation of low weight; -, corona not visible; and X, position angle not included in plate estimates.

RELATIVE SUNSPOT NUMBERS

Table 90 lists the daily provisional Zürich relative sunspot number, R_z , as communicated by the Swiss Federal Observatory. Table 91 continues the new series of American relative sunspot numbers, R_A . Beginning with 1951, the observations collected by the Solar Division, AAVSO, have been reduced according to a new procedure, such that only high quality observations of experienced observers are combined into R_A . Observatory coefficients for each of the 22 selected observers were recomputed on data for 1948-1950, years when there was a wide range of solar activity. Otherwise, the procedure is that outlined in Publication of the Astronomical Society of the Pacific, 61, 13, 1949. The scale of the American numbers in 1951 will differ from that of the reports for earlier years because of these changes, and the new series is designated R_A rather than R_A . The American relative sunspot number will appear monthly in these pages, as communicated by the Solar Division.

OBSERVATIONS OF SOLAR FLARES

Table 92 gives the preliminary record of solar flares reported to the CRPL. These reports are communicated on a rapid schedule at the sacrifice of detailed accuracy. Definitive and complete records are published later in the Quarterly Bulletin of Solar Activity, I.A.U., in various observatory publications, and elsewhere. The present listing serves to identify and roughly describe the phenomena observed. Details should be sought from the reporting observatory.

Reporting directly to the CRPL are the following observatories: Mt. Wilson, McMath-Hulbert, U. S. Naval, Wendelstein, Kanzel and High Altitude at Sacramento Peak, New Mexico. The remainder report to Meudon (Paris), and the data are taken from the Paris-URSIGRAM broadcast, monitored fairly regularly by the CRPL. The data on solar flares reported from Sacramento Peak, New Mexico, communicated by the High Altitude Observatory at Boulder, Colorado, are provided by Harvard University as the result of work undertaken on an Air Materiel Command Research and Development Contract administered by the Air Force Cambridge Research Laboratories.

The table lists for each flare the reporting observatory, date, times of beginning and ending of observation, duration (when known), total area (corrected for foreshortening), and heliographic coordinates. For the maximum phase of the flare is given the time, intensity, area relative to the total area, and the importance. The column "SID observed" is to indicate when a sudden ionosphere disturbance, noted elsewhere in these reports, occurred at the time of a flare. Times are in Universal Time (GCT).

INDICES OF GEOMAGNETIC ACTIVITY

Table 93 lists various indices of geomagnetic activity based on data from magnetic observatories widely distributed throughout the world. The indices are: (1) preliminary mean 3-hourly K-indices, Kw; (2) preliminary international character-figures, C; (3) geomagnetic planetary three-hour-range indices, Kp; (4) magnetically selected quiet and disturbed days.

Kw is the arithmetic mean of the K-indices from all reporting observatories for each three hours of the Greenwich day, on a scale 0 (very quiet) to 9 (extremely disturbed). The C-figure is the arithmetic mean of the subjective classification by all observatories of each day's magnetic activity on a scale of 0 (quiet) to 2 (storm). The magnetically quiet and disturbed days are selected by the international scheme outlined on pages 219-227 in the December 1943 issue of Terrestrial Magnetism and Atmospheric Electricity.

Kp is the mean standardized K-index from 11 observatories between geomagnetic latitudes 47 and 63 degrees. The scale is 0 to 9, expressed in thirds of a unit, e.g., 5- is $4 \frac{2}{3}$, 5o is $5 \frac{0}{3}$, and 5+ is $5 \frac{1}{3}$. This planetary index is designed to measure solar particle-radiation by its magnetic effects, specifically to meet the needs of research workers in the ionospheric field. A complete description of Kp has appeared in Bulletin 12b, "Geomagnetic Indices C and K, 1948," published in Washington, D. C., 1949, by the Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics. Tables of Kp for 1945-48 are in Bulletin 12b; for 1940-44 and 1949, in these CRPL-F reports, F65-67; for 1950, monthly in F68 and following issues. Current tables are also published quarterly in the Journal of Geophysical Research along with data on sudden commencements (sc) and solar flare effects (sfe).

The Committee on Characterization of Magnetic Disturbance, ATME, IUGG, has kindly supplied this table. The Meteorological Office, De Bilt, Holland, collects the data and compiles Kw, C and selected days. The Chairman of the Committee computes the planetary index.

SUDDEN IONOSPHERE DISTURBANCES

Tables 94 through 97 list respectively the sudden ionosphere disturbances observed at Ft. Belvoir, Virginia, November 1951; at Platanos, Argentina, October 1951; in England, November 1951; and on Barbados, B.W.I., September 1951.

ERRATA

1. CRPL-F87; pp. 19, 20, and 23; tables 44, 52, and 67, respectively: The first footnote should read "Average values except foF2 and fEs, which are median values."
2. CRPL-F84, p. 20, table 51: At 1400 in the (M3000)F2 column, the value should be (3.4).

INDEX OF IONOSPHERIC DATA PUBLISHED IN 1951

(CRPL-F77 THROUGH F88)

The following index of tables and graphs of ionospheric data published in the CRPL-F series in 1951 is divided into two parts. Part I is an index of data observed in 1950 and 1951. Part II is an index of data observed prior to 1950.

In general, both table and graphs for a given station for a given month appear in the same issue.

Indexes of ionospheric data published prior to 1951 are in IRPL-F17, CRPL-F28, -F40, -F52, -F64, and -F76.

PART I

Index of Tables and Graphs of Ionospheric Data Observed in 1950 and 1951 and Published in 1951 (CRPL-F77 through F88)

| Station | 1950 | | | | | | | | | | | | 1951 | | | | | | | | | | | | |
|---------------------------------|------|----|---|----|----|----|----|----|----|-------|----|----|------|----|----|----|-------|----|-------|----|----|----|----|----|----|
| | J | F | M | A | M | J | Jy | A | S | O | N | D | J | F | M | A | M | J | Jy | A | S | O | N | D | |
| Adak, Alaska | | | | | | | | | | | | | | 83 | 83 | 83 | 84+ | | 85 | 87 | 88 | 88 | | | |
| Akita, Japan | | | | | | | | | | 77 | 78 | 79 | | 80 | 81 | 82 | 83 | 84 | 86 | | 87 | 88 | | | |
| Anchorage, Alaska | | | | | | | | | | | | | | | | | 83 | 83 | 84 | | 85 | 86 | 87 | 88 | |
| Baker Lake, Canada | | | | | | | | | | | | | | | | | 83 | 84 | 85 | 87 | 87 | 88 | | | |
| Baton Rouge, Louisiana | | | | | | | | | | 78 | 79 | | | 80 | 81 | 82 | 82 | 84 | 85 | | | | 88 | | |
| Bombay, India | | | | | | | 78 | 78 | 79 | 81 | 82 | 82 | | 85 | 85 | 86 | 86 | 87 | | | | | | | |
| Boston, Massachusetts | | | | | | | | | | | 77 | 78 | | 79 | 80 | 81 | 82 | 84 | 85 | | | | | | |
| Brisbane, Australia | | | | | | | | 77 | 78 | 81 | 82 | 83 | | 85 | 85 | 85 | 85 | 87 | 88 | | 88 | | | | |
| Buenos Aires, Argentina | | | | | | | | | | | | | | 86 | 86 | 86 | 86 | | | | | | | | |
| Calcutta, India | | | | | | | 85 | 85 | 85 | 85#85 | 85 | | | 85 | 85 | 85 | 85 | 87 | | | | | | | |
| Canberra, Australia | | | | | | | | 77 | 78 | 81 | 82 | 83 | | 85 | | 85 | 85 | 87 | 88 | | | | | | |
| Capetown, Union of S.Africa | | | | | | | | | | 77 | 78 | 79 | | 80 | 81 | 82 | 84 | 84 | 86 | | 87 | 88 | 88 | | |
| Christchurch, New Zealand | | | | | | | | | | 78 | 79 | 79 | 81 | 82 | 84 | 84 | 84 | 87 | 87 | | 88 | | | | |
| Churchill, Canada | | | | | | | | | | | | | | | | | 83 | 83 | 84 | 86 | 88 | 88 | 88 | | |
| Dakar, French West Africa | | | | 79 | 79 | 79 | 83 | 81 | 83 | 83 | 83 | 83 | | 84 | 86 | 86 | 88 | | | | | | | | |
| De Bilt, Holland | | | | | | | | | | | 77 | 78 | | | 80 | 81 | 82 | | 85 | | 86 | 87 | 88 | | |
| Delhi, India | | | | | | | 78 | 78 | 79 | 81 | 82 | 82 | | 85 | 85 | 86 | 86 | 87 | | | | | | | |
| Domont, France | | | | | | 78 | 80 | | | 82 | 83 | 84 | 84 | 84 | | | 86 | 87 | 88 | | | | | | |
| Fairbanks, Alaska | | | | | | | | | | | | | | | | | | 83 | 84 | 84 | | 85 | 87 | 88 | |
| Falkland Is. | | | | | | | | | | | 86 | 86 | 86 | | 86 | 86 | 87*87 | 87 | | | | | | | |
| Formosa, China | | | | | | | | | | | 77 | 78 | 79 | | 80 | 81 | 82 | 84 | 85 | 86 | | 87 | 88 | | |
| Fort Chimo, Canada | | | | | | | | | | | | | | | | | 83 | 83 | 85 | 85 | 86 | | 87 | 88 | |
| Fraserburgh, Scotland | | | | | | | | | | | | 86 | 86 | | 86 | 86 | 86 | 87 | 87*87 | | | | | | |
| Fribourg, Germany | | | | 79 | 79 | 79 | 84 | | | 83 | 86 | 83 | 83 | | 86 | 86 | 86 | 88 | 88 | 88 | | | | | |
| Graz, Austria | | | | | | | | | | | | | | | | | 81 | 81 | | 84 | 85 | | | | |
| Guam I | 77 | 78 | | | | | | | | | 77 | 77 | 78 | | 79 | 80 | 81 | 83 | 84 | 85 | | 85 | 86 | 87 | |
| Hobart, Tasmania | | | | | | | | | | 77 | 78 | 81 | 82 | 83 | | 85 | 85 | 85 | 85 | 87 | 88 | | 88 | | |
| Huancayo, Peru | | | | | | | | | | | | 77 | 78 | | 79 | 80 | 81 | 82 | 83 | 84 | | 86 | 86 | 87 | 88 |
| Johannesburg, Union of S.Africa | | | | | | | | | | | 77 | 78 | 79 | | 80 | 81 | 82 | 84 | 84 | 86 | | 87 | 88 | 88 | |
| Kiruna, Sweden | | | | | | | | | | | 77 | 77 | 79 | | 81 | 81 | 81 | 87 | 88 | 88 | | 88 | | | |
| Lindau/Harz, Germany | | | | | | | | | | | 78 | 78 | 80 | | 81 | 82 | 82 | 84 | 84 | 87 | | | | | |
| Macquarie I. | | | | | | 88 | 88 | 88 | 88 | 88 | 88 | 88 | | | | | 88 | 88 | 88 | 88 | | | | | |
| Madras, India | | | | | | | 78 | 78 | 79 | 81 | 82 | 82 | | | | | 85 | 85 | 86 | 86 | 87 | | | | |
| Maui, Hawaii | | | | | | | | | | | | 77 | 78 | | 79 | 80 | 81 | 82 | 83 | 84 | | 85 | 86 | 87 | 88 |
| Narsarssuak, Greenland | | | | | | | | | | | | 83 | | | 83 | 83 | 83 | 83 | 87 | 86 | | 85 | 87 | 87 | 88 |
| Okinawa I | | | | | | | | | | | 77 | 78 | | | 80 | 80 | 81 | 82 | 83 | 84 | | 85 | 87 | 88 | 88 |
| Oslo, Norway | | | | | | | | | | | | 77 | 78 | | 79 | 80 | 81 | 82 | 83 | 84 | | 85 | 86 | 87 | 88 |
| Ottawa, Canada | | | | | | | | | | | | | | | | | 83 | 83 | 85 | 86 | | 88 | 88 | | |
| Panama Canal Zone | | | | | | | | | | | | | | | | | | | 84 | | | 86 | 87 | 87 | |
| Point Barrow, Alaska | | | | | | | | | | | | | | | | | | 83 | 83 | 84 | | 85 | 87 | 87 | 88 |
| Poitiers, France | | | | 78 | 80 | 81 | 81 | 82 | 84 | 84 | 84 | 84 | | | 86 | 87 | 88 | | | | | | | | |
| Portage la Prairie, Canada | | | | | | | | | | | | | | | | | 83 | | | | | | | | |
| Prince Rupert, Canada | | | | | | | | | | | | | | | | | 83 | 83 | 84 | 86 | | 88 | 88 | 88 | |
| Puerto Rico, W.I. | | | | | | | | | | | | | | | | | | 86 | 85 | 84 | | 85 | 86 | 87 | 88 |
| Rarotonga I. | | | | | | | | 78 | 78 | 79 | 81 | 81 | | | 82 | 84 | 84 | 85 | 87 | 87 | | | | | |

PART I (CONTINUED)

Index of Tables and Graphs of Ionospheric Data Observed in 1950 and 1951 and Published in 1951 (CRPL-F77 through F88)

| Station | 1950 | | | | | | | | | | | | 1951 | | | | | | | | | | | |
|-------------------------------|------|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|-------|----|----|----|----|----|----|---|
| | J | F | M | A | M | J | Jy | A | S | O | N | D | J | F | M | A | M | J | Jy | A | S | O | N | D |
| Resolute Bay, Canada | | | | | | | | | | | | | 83 | 63 | 83 | 85 | 87 | | | | | | | |
| Reykjavik, Iceland | 83 | 83 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 84 | 85 | 85 | 86 | 87 | 87 | 86 | | | | | | |
| Rome, Italy | | | | | | | | | | | | | 87 | 87 | 87 | 87 | 87 | | | | | | | |
| St.John's,Newfoundland | | | | | | | | | | | | | 83 | 83 | 85 | 86 | | | 87 | 88 | 88 | | | |
| San Francisco, California | | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | | |
| San Juan, Puerto Rico | | | | | | | | | | | 77 | 78 | | | | | | | | | | | | |
| Schwarzenburg, Switzerland | | | | | | | | | | | 81 | | 81 | 81 | 83 | 83 | 84 | 86 | 86 | 87 | 88 | | | |
| Singapore, British Malaya | | | | | | | | | | | 86 | 86 | 86 | 86 | 86 | 87 | 27*87 | | | | | | | |
| Slough, England | | | | | | | | | | | 86 | 86 | 86 | 86 | 87 | 87 | 87 | | | | | | | |
| Terre Adelie | | | | | | | | | | | | | 87 | 88 | | | | | | | | | | |
| Tiruchy, India | | | | | | | 78 | 78 | 79 | 81 | 82 | 82 | 85 | 85 | 86 | 86 | 87 | | | | | | | |
| Tokyo, Japan | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 86 | 87 | 88 | | | | |
| Trinidad, British West Indies | | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | | | | | | |
| Tromso,Norway | | | | | | | | | | | | | 82 | 82 | 82 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | | |
| Wakkanai, Japan | | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 86 | 87 | 88 | | | |
| Washington, D.C. | | | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | |
| Watheroo, Western Australia | | | | | | | | | | 78 | 79 | 79 | 81 | 82 | 83 | 84 | 85 | 87 | 87 | 88 | | | | |
| White Sands, New Mexico | | | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | |
| Winnipeg, Canada | | | | | | | | | | | | | | | | 83 | 86 | 88 | 88 | 88 | | | | |
| Yamagawa, Japan | | | | | | | | | | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 86 | 87 | 88 | | | | |

+See erratum in F85, p. 10.

#See erratum in F86, p. 11.

*See erratum in F88, p. 11.

"See erratum in F88, p. 11.

PART II

Index of Tables and Graphs of Ionospheric Data Observed Prior to 1950 and Published in 1951 (CRPL-F77 through F88)

| Station | 1948 | | | | | | | | | | | | 1949 | | | | | | | | | | | |
|-------------|------|---|---|---|---|----|----|----|----|----|----|----|------|---|---|---|---|----|----|----|----|----|----|----|
| | J | F | M | A | M | J | Jy | A | S | O | N | D | J | F | M | A | M | J | Jy | A | S | O | N | D |
| Campbell I. | | | | | | 78 | 77 | 77 | 77 | 77 | 77 | 77 | | | | | * | 78 | 77 | 77 | 77 | | | |
| Guam I. | | | | | | | | | | | | | | | | | | | | | | 78 | 78 | 78 |
| Campbell I. | 1946 | | | | | | | | | | | | 1947 | | | | | | | | | | | |
| | | | | | | 78 | | | | | | | | | | | | 78 | 77 | 77 | 77 | 77 | 77 | 77 |
| Campbell I. | 1944 | | | | | | | | | | | | 1945 | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | 78 | 77 | 77 | 78 | 78 | 78 | 77 |

*See erratum in F77, p. 11.

TABLES OF IONOSPHERIC DATA

Table 1

Washington, D. C. (38.7°N, 77.1°W) November 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|------|------|-------|-------|-----|-----|-----------|
| 00 | 280 | 3.6 | | | | | 2.9 | |
| 01 | 280 | 3.4 | | | | | 2.9 | |
| 02 | 280 | 3.5 | | | | | 3.0 | |
| 03 | 270 | 3.6 | | | | | 3.0 | |
| 04 | 260 | 3.4 | | | | | 3.0 | |
| 05 | 260 | 3.1 | | | | | 3.0 | |
| 06 | (270) | 3.0 | | | | | 3.0 | |
| 07 | 240 | 4.8 | | | (120) | 1.8 | 3.2 | |
| 08 | 240 | 7.0 | 230 | --- | 120 | 2.2 | 3.4 | |
| 09 | 240 | 7.6 | 220 | --- | 120 | 2.7 | 3.4 | |
| 10 | 250 | 8.2 | 210 | 3.9 | 110 | 2.9 | 3.2 | |
| 11 | 260 | 8.8 | 220 | 4.2 | 110 | 3.1 | 3.2 | |
| 12 | 260 | 9.2 | 220 | --- | 110 | 3.1 | 3.1 | |
| 13 | 260 | 9.3 | 230 | (4.0) | 110 | 3.1 | 3.1 | |
| 14 | 250 | 9.1 | 230 | 3.9 | 120 | 2.9 | 3.2 | |
| 15 | 250 | 9.0 | 230 | --- | 120 | 2.6 | 3.2 | |
| 16 | 230 | 8.6 | --- | --- | 120 | 2.1 | 3.2 | |
| 17 | 220 | 7.6 | | | | | 3.0 | |
| 18 | 230 | 6.6 | | | | | 3.0 | |
| 19 | 240 | 5.6 | | | | | 3.0 | |
| 20 | 250 | 4.6 | | | | | 3.0 | |
| 21 | 260 | 4.0 | | | | | 3.0 | |
| 22 | (270) | 3.8 | | | | | 3.0 | |
| 23 | (280) | 3.8 | | | | | 3.0 | |

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|-------|------|------|-----|-----|-----|-----------|
| 00 | 270 | (3.6) | | | | | 5.0 | (2.9) |
| 01 | 300 | (3.4) | | | | | 4.5 | (2.9) |
| 02 | 290 | (3.6) | | | | | 4.2 | (2.8) |
| 03 | 300 | (3.6) | | | | | 4.6 | (2.8) |
| 04 | 310 | (3.4) | | | | | 3.3 | (2.7) |
| 05 | 320 | (3.7) | | | | | 3.9 | (2.9) |
| 06 | 320 | (3.9) | | | | | 3.8 | (2.8) |
| 07 | 320 | 3.9 | | | | | 4.0 | 2.9 |
| 08 | 290 | 4.2 | | | | | 4.6 | 3.0 |
| 09 | 260 | 4.7 | | | | | 4.0 | 3.1 |
| 10 | 260 | 5.0 | 260 | --- | | | 3.3 | 3.1 |
| 11 | 280 | 5.4 | 250 | --- | 120 | 2.4 | | 3.1 |
| 12 | 260 | 5.4 | 260 | --- | | | | 3.1 |
| 13 | 260 | 5.6 | 240 | --- | 120 | 2.4 | | 3.1 |
| 14 | 260 | 6.1 | 230 | --- | 130 | 2.3 | | 3.2 |
| 15 | 270 | 6.3 | 240 | --- | 120 | 2.2 | | 3.1 |
| 16 | 250 | 6.0 | | | | | | 3.1 |
| 17 | 260 | 5.1 | | | | | 2.2 | 3.0 |
| 18 | 280 | 4.0 | | | | | 2.5 | 3.0 |
| 19 | 280 | 3.5 | | | | | 3.4 | 3.0 |
| 20 | 280 | (3.4) | | | | | 4.3 | (3.0) |
| 21 | 290 | (3.3) | | | | | 4.3 | 3.0 |
| 22 | 260 | (3.6) | | | | | 4.4 | (3.0) |
| 23 | 300 | (3.4) | | | | | 5.6 | (3.0) |

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 3

Tromsø, Norway (69.7°N, 19.6°E) October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-------|-----|-----------|
| 00 | (365) | (3.4) | | | | | 4.7 | (2.8) |
| 01 | (350) | (3.5) | | | | | 5.2 | (2.7) |
| 02 | (350) | (3.6) | | | | | 5.1 | (2.7) |
| 03 | 310 | (3.4) | | | | | 5.2 | (2.8) |
| 04 | 290 | 3.5 | | | | | 4.1 | 3.0 |
| 05 | 285 | 3.1 | | | | | 4.4 | 3.0 |
| 06 | 280 | 3.2 | | | 115 | 1.5 | 3.2 | 3.0 |
| 07 | 250 | 4.0 | | | 115 | (1.7) | 3.2 | 3.1 |
| 08 | 250 | 4.8 | 240 | --- | 110 | (2.0) | 3.2 | 3.2 |
| 09 | 255 | 5.5 | 240 | --- | 110 | (2.2) | 3.0 | 3.2 |
| 10 | 260 | 5.6 | 240 | --- | 110 | (2.3) | 3.1 | 3.2 |
| 11 | 260 | 5.8 | 245 | --- | 120 | (2.4) | 2.4 | 3.2 |
| 12 | 260 | 5.7 | 250 | --- | 110 | 2.4 | 3.2 | 3.2 |
| 13 | 255 | 5.8 | 250 | --- | 120 | 2.4 | 3.2 | 3.2 |
| 14 | 250 | 5.4 | 245 | --- | 110 | (2.2) | 3.0 | 3.2 |
| 15 | 250 | 5.0 | --- | --- | --- | 2.0 | 3.2 | 3.3 |
| 16 | 240 | 5.2 | | | --- | 1.8 | 3.0 | 3.2 |
| 17 | 245 | 5.3 | | | --- | | 4.2 | 3.2 |
| 18 | 295 | 4.6 | | | | | 3.4 | 3.0 |
| 19 | 260 | (4.3) | | | | | 4.4 | (3.1) |
| 20 | 315 | (4.2) | | | | | 4.3 | 3.0 |
| 21 | (280) | (3.9) | | | | | 5.2 | (2.9) |
| 22 | 320 | (4.2) | | | | | 4.8 | (2.8) |
| 23 | (350) | (3.8) | | | | | 5.0 | 2.7 |

Time: 15.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 4

Anchorage, Alaska (61.2°N, 149.9°W) October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | 380 | (2.8) | | | | | | (2.6) |
| 01 | (390) | (2.6) | | | | | | (2.6) |
| 02 | (390) | 2.6 | | | | | | (2.5) |
| 03 | (400) | (2.4) | | | | | 3.6 | (2.5) |
| 04 | (400) | (2.6) | | | | | | (2.4) |
| 05 | --- | (2.7) | | | | | 3.4 | --- |
| 06 | 320 | 3.0 | | | | | | 2.8 |
| 07 | 280 | 3.6 | | | | | | 3.0 |
| 08 | 280 | 4.7 | 280 | --- | | | | 3.0 |
| 09 | 290 | 5.8 | 290 | 3.8 | | | | 2.9 |
| 10 | 300 | 6.2 | 250 | 3.9 | | | | 2.9 |
| 11 | 280 | 6.8 | 250 | 4.0 | --- | --- | | 3.0 |
| 12 | 290 | 6.9 | 260 | 4.1 | --- | --- | | 2.9 |
| 13 | 300 | 7.0 | 270 | 3.9 | --- | --- | | 2.9 |
| 14 | 300 | 7.0 | 280 | --- | --- | --- | | 3.0 |
| 15 | 280 | 7.0 | 290 | --- | | | | 3.0 |
| 16 | 270 | 6.7 | | | | | | 3.0 |
| 17 | 260 | 6.3 | | | | | | 3.1 |
| 18 | 270 | 5.3 | | | | | | 3.0 |
| 19 | 280 | 3.9 | | | | | | 2.9 |
| 20 | 290 | 3.4 | | | | | | 2.8 |
| 21 | 300 | 2.4 | | | | | | 2.8 |
| 22 | (300) | 2.4 | | | | | | 2.8 |
| 23 | 350 | (2.4) | | | | | | (2.7) |

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 5

Narsarsuaq, Greenland (61.2°N, 45.4°W) October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|-------|------|-------|-------|-----|-----------|
| 00 | (380) | (2.8) | | | | | 4.2 | --- |
| 01 | (370) | (3.1) | | | | | 3.8 | (2.5) |
| 02 | --- | --- | | | | | 4.0 | --- |
| 03 | (420) | (3.7) | | | | | 4.2 | (2.6) |
| 04 | (400) | (3.8) | | | | | 4.0 | (2.7) |
| 05 | (360) | (3.1) | | | | | 4.0 | (2.7) |
| 06 | (330) | 3.1 | | | | | 3.3 | (2.9) |
| 07 | 290 | (4.0) | | | | | 3.0 | |
| 08 | (310) | 4.8 | --- | --- | | | 3.0 | |
| 09 | (310) | 5.3 | --- | --- | --- | --- | 3.0 | |
| 10 | 340 | 5.7 | 270 | --- | (140) | --- | 2.9 | |
| 11 | 340 | 6.1 | 270 | --- | (140) | --- | 2.8 | |
| 12 | 340 | 6.0 | 280 | 3.8 | --- | --- | 2.8 | |
| 13 | 340 | 6.2 | (280) | --- | (140) | (2.7) | 2.8 | |
| 14 | 320 | 6.1 | 280 | --- | --- | --- | 2.9 | |
| 15 | 310 | 6.0 | 280 | --- | --- | --- | 2.9 | |
| 16 | 340 | 4.7 | 300 | --- | (140) | --- | 2.1 | 2.8 |
| 17 | (360) | (4.4) | | | --- | --- | 3.9 | (2.8) |
| 18 | (360) | (3.7) | | | | | 4.2 | (2.7) |
| 19 | (340) | (3.8) | | | | | 5.5 | (2.7) |
| 20 | (330) | (3.3) | | | | | 6.3 | (2.7) |
| 21 | (340) | (4.0) | | | | | 6.0 | (2.8) |
| 22 | (360) | (3.3) | | | | | 5.4 | --- |
| 23 | (380) | (3.1) | | | | | 3.5 | --- |

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 6

Oslo, Norway (60.0°N, 11.0°E) October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 320 | 2.7 | | | | | 2.8 | 2.8 |
| 01 | 320 | 2.7 | | | | | 2.8 | 2.8 |
| 02 | 325 | 2.6 | | | | | 2.9 | 2.8 |
| 03 | 315 | 2.4 | | | | | 2.7 | 2.8 |
| 04 | 310 | 2.2 | | | | | 2.8 | 2.8 |
| 05 | 300 | 2.0 | | | | | 3.0 | 3.0 |
| 06 | 280 | 2.5 | | | | | 2.8 | 3.1 |
| 07 | 250 | 3.8 | --- | --- | 130 | 1.6 | 2.9 | 3.1 |
| 08 | 235 | 4.8 | 235 | --- | 125 | 2.0 | 2.2 | 3.3 |
| 09 | 245 | 5.6 | 225 | 3.5 | 120 | 2.3 | 3.0 | 3.4 |
| 10 | 250 | 5.9 | 220 | 3.8 | 110 | 2.4 | 3.4 | 3.4 |
| 11 | 250 | 6.4 | 220 | 4.0 | 110 | 2.6 | 3.5 | 3.3 |
| 12 | 250 | 6.6 | 215 | 4.0 | 110 | 2.6 | 3.4 | 3.3 |
| 13 | 250 | 6.7 | 220 | 4.0 | 110 | 2.6 | 3.4 | 3.3 |
| 14 | 250 | 6.6 | 230 | 3.8 | 110 | 2.4 | 3.2 | 3.4 |
| 15 | 235 | 6.4 | 230 | --- | 120 | 2.2 | 3.0 | 3.4 |
| 16 | 230 | 6.4 | 235 | --- | 125 | 2.1 | 2.8 | 3.3 |
| 17 | 225 | 6.5 | | | --- | E | 3.0 | 3.3 |
| 18 | 225 | 5.6 | | | --- | E | 1.5 | 3.2 |
| 19 | 230 | 4.7 | | | | | 2.8 | 3.2 |
| 20 | 245 | 3.5 | | | | | 2.2 | 3.1 |
| 21 | 275 | 3.0 | | | | | 2.0 | (3.0) |
| 22 | 320 | 2.9 | | | | | | 2.9 |
| 23 | 325 | 3.0 | | | | | 2.4 | 2.8 |

Time: 15.0°E.

Sweep: 1.3 Mc to 11.0 Mc in 8 minutes, automatic operation.

Table 7

Adak, Alaska (51.9°N, 176.6°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|-------|-----|-----|-----|-----------|
| 00 | 280 | 3.2 | --- | --- | --- | --- | 2.1 | 2.8 |
| 01 | 300 | 3.1 | --- | --- | --- | --- | 2.3 | 2.7 |
| 02 | 300 | 3.1 | --- | --- | --- | --- | 2.2 | 2.8 |
| 03 | 300 | 2.9 | --- | --- | --- | --- | 2.3 | 2.7 |
| 04 | 300 | 2.9 | --- | --- | --- | --- | 2.4 | 2.8 |
| 05 | 280 | 2.8 | --- | --- | --- | --- | 3.0 | 2.8 |
| 06 | 270 | 3.7 | --- | --- | 120 | 1.4 | 2.4 | 3.0 |
| 07 | 240 | 5.6 | 240 | 2.5 | 120 | 1.9 | 2.4 | 3.3 |
| 08 | 230 | 6.7 | 230 | 3.5 | 120 | 2.4 | 3.4 | 3.3 |
| 09 | 240 | 7.6 | 220 | 3.4 | 110 | 2.7 | 3.0 | 3.2 |
| 10 | 260 | 8.3 | 220 | (4.1) | 110 | 2.8 | 3.9 | 3.2 |
| 11 | 250 | 8.6 | 220 | 4.2 | 110 | 2.9 | 4.6 | 3.2 |
| 12 | 250 | 8.8 | 220 | 4.2 | 110 | 2.9 | 4.6 | 3.2 |
| 13 | 240 | 8.6 | 230 | --- | 110 | 2.8 | 4.0 | 3.3 |
| 14 | 230 | 8.2 | 230 | --- | 110 | 2.6 | 3.8 | 3.3 |
| 15 | 230 | 7.8 | 230 | --- | 110 | 2.4 | 4.4 | 3.3 |
| 16 | 230 | 7.0 | 230 | --- | 120 | 1.8 | 4.2 | 3.4 |
| 17 | 220 | 6.3 | --- | --- | 110 | --- | 3.9 | 3.3 |
| 18 | 220 | 5.1 | --- | --- | --- | --- | 4.1 | 3.2 |
| 19 | 240 | 4.0 | --- | --- | --- | --- | 3.7 | 3.1 |
| 20 | 250 | 3.1 | --- | --- | --- | --- | 3.2 | 3.0 |
| 21 | 260 | 3.2 | --- | --- | --- | --- | 2.1 | 3.0 |
| 22 | 270 | 3.0 | --- | --- | --- | --- | 2.4 | 2.9 |
| 23 | 280 | 2.8 | --- | --- | --- | --- | 1.4 | 2.6 |

Time: 100.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 1st seconds.

Table 8

San Francisco, California (37.4°N, 122.2°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-------|-------|-----|-----------|
| 00 | 280 | 3.3 | --- | --- | --- | --- | 2.4 | 2.9 |
| 01 | 280 | 3.4 | --- | --- | --- | --- | 2.2 | 2.9 |
| 02 | 280 | 3.4 | --- | --- | --- | --- | 2.4 | 2.9 |
| 03 | 280 | 3.5 | --- | --- | --- | --- | --- | 2.9 |
| 04 | 270 | 3.4 | --- | --- | --- | --- | --- | 3.0 |
| 05 | 280 | 3.3 | --- | --- | --- | --- | --- | 2.9 |
| 06 | 260 | (3.7) | --- | --- | --- | --- | --- | 3.0 |
| 07 | 230 | 6.0 | --- | --- | --- | --- | --- | 3.4 |
| 08 | 240 | 7.0 | 230 | 4.0 | (120) | (2.6) | 2.9 | 3.4 |
| 09 | 250 | 7.7 | 220 | 4.1 | 110 | (3.0) | 2.8 | 3.3 |
| 10 | 270 | 8.2 | 210 | 4.4 | 110 | --- | 2.9 | 3.2 |
| 11 | 270 | 8.9 | 220 | 4.6 | 110 | --- | --- | 3.1 |
| 12 | 270 | 9.4 | 220 | 4.6 | 110 | (3.4) | 2.6 | 3.1 |
| 13 | 270 | 9.2 | 230 | 4.5 | 110 | 3.3 | 2.8 | 3.2 |
| 14 | 260 | 9.0 | 230 | 4.4 | 120 | 3.1 | --- | 3.2 |
| 15 | 250 | 9.0 | 240 | 4.1 | 110 | 2.9 | --- | 3.2 |
| 16 | 240 | 8.8 | 240 | --- | 120 | (2.6) | --- | 3.3 |
| 17 | 230 | 7.6 | --- | --- | 110 | --- | 2.2 | 3.4 |
| 18 | 220 | 6.3 | --- | --- | --- | --- | 2.2 | 3.3 |
| 19 | 230 | 5.0 | --- | --- | --- | --- | 2.7 | 3.3 |
| 20 | 230 | 3.6 | --- | --- | --- | --- | --- | 3.3 |
| 21 | (250) | 3.1 | --- | --- | --- | --- | --- | 3.1 |
| 22 | 280 | (3.2) | --- | --- | --- | --- | --- | 3.0 |
| 23 | 290 | 3.2 | --- | --- | --- | --- | --- | 2.9 |

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 9

White Sands, New Mexico (32.3°N, 106.5°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|------|------|------|-----|-----|-----|-----------|
| 00 | 290 | 3.6 | --- | --- | --- | --- | 2.9 | 3.0 |
| 01 | 270 | 3.6 | --- | --- | --- | --- | 2.9 | 3.0 |
| 02 | 260 | 3.7 | --- | --- | --- | --- | 2.9 | 3.0 |
| 03 | 250 | 3.7 | --- | --- | --- | --- | 3.0 | 3.0 |
| 04 | 250 | 3.6 | --- | --- | --- | --- | 3.0 | 3.0 |
| 05 | 260 | 3.5 | --- | --- | --- | --- | 3.0 | 3.0 |
| 06 | 250 | 4.1 | --- | --- | --- | --- | 3.1 | 3.1 |
| 07 | 230 | 6.4 | 230 | --- | 110 | 2.0 | 3.4 | 3.4 |
| 08 | 240 | 7.8 | 210 | 4.0 | 100 | 2.6 | 2.8 | 3.4 |
| 09 | 240 | 8.1 | 200 | 4.4 | 100 | 3.0 | 3.2 | 3.4 |
| 10 | 260 | 8.8 | 190 | 4.6 | 100 | 3.2 | 3.4 | 3.2 |
| 11 | 270 | 9.3 | 200 | 4.7 | 100 | 3.3 | 3.1 | 3.1 |
| 12 | 270 | 10.0 | 200 | 4.8 | 100 | 3.4 | 3.4 | 3.1 |
| 13 | 270 | 10.0 | 210 | 4.8 | 100 | 3.3 | 3.1 | 3.1 |
| 14 | 260 | 9.6 | 220 | 4.6 | 100 | 3.2 | 3.1 | 3.1 |
| 15 | 250 | 9.6 | 220 | --- | 100 | 3.0 | 3.2 | 3.2 |
| 16 | 230 | 9.2 | 230 | --- | 110 | 2.5 | 2.9 | 3.3 |
| 17 | 220 | 8.6 | --- | --- | 120 | 1.9 | 2.4 | 3.4 |
| 18 | 210 | 7.1 | --- | --- | --- | --- | 2.7 | 3.4 |
| 19 | 210 | 4.8 | --- | --- | --- | --- | 2.6 | 3.3 |
| 20 | 240 | 3.9 | --- | --- | --- | --- | --- | 3.2 |
| 21 | 250 | 3.5 | --- | --- | --- | --- | 3.1 | 3.1 |
| 22 | (280) | 3.6 | --- | --- | --- | --- | 2.5 | 2.9 |
| 23 | 280 | 3.5 | --- | --- | --- | --- | 2.0 | 2.9 |

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 10

Baton Rouge, Louisiana (30.5°N, 91.2°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|-------|-----|-------|-----|-----------|
| 00 | 300 | 3.8 | --- | --- | --- | --- | 2.8 | 2.8 |
| 01 | 300 | 3.9 | --- | --- | --- | --- | 2.8 | 2.8 |
| 02 | 290 | 4.0 | --- | --- | --- | --- | 3.0 | 2.8 |
| 03 | 280 | 4.0 | --- | --- | --- | --- | 3.0 | 2.9 |
| 04 | 270 | 5.7 | --- | --- | --- | --- | --- | 2.9 |
| 05 | 280 | 3.6 | --- | --- | --- | --- | --- | 2.9 |
| 06 | 270 | 4.3 | --- | --- | --- | --- | 3.6 | 3.0 |
| 07 | 250 | 6.8 | --- | --- | 120 | 2.2 | 3.6 | 3.3 |
| 08 | 260 | 8.0 | 230 | --- | 120 | (2.6) | 6.4 | 3.3 |
| 09 | 270 | 8.3 | 220 | --- | 110 | 2.9 | 6.0 | 3.2 |
| 10 | 280 | 8.6 | 220 | 4.6 | 110 | 3.2 | 5.4 | 3.1 |
| 11 | 280 | 9.7 | 220 | 4.7 | 120 | 3.4 | 5.4 | 3.0 |
| 12 | 290 | 10.3 | 220 | (4.7) | 120 | 3.4 | 5.0 | 3.0 |
| 13 | 290 | 10.4 | 230 | 4.7 | 120 | 3.4 | 3.7 | 3.0 |
| 14 | 280 | 10.4 | 240 | 4.8 | 120 | 3.2 | 3.9 | 3.0 |
| 15 | 270 | 10.2 | 250 | --- | 120 | 2.9 | 3.8 | 3.1 |
| 16 | 260 | 9.6 | 240 | --- | 120 | 2.5 | 4.1 | 3.1 |
| 17 | 240 | 8.8 | --- | --- | 130 | 2.2 | 2.2 | 3.2 |
| 18 | 230 | 7.5 | --- | --- | --- | --- | 3.3 | 3.2 |
| 19 | 230 | 5.3 | --- | --- | --- | --- | 2.4 | 3.0 |
| 20 | 260 | 4.5 | --- | --- | --- | --- | --- | 3.0 |
| 21 | 280 | 4.1 | --- | --- | --- | --- | --- | 2.9 |
| 22 | 290 | 4.0 | --- | --- | --- | --- | --- | 2.8 |
| 23 | 300 | 3.9 | --- | --- | --- | --- | --- | 2.8 |

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 11

Okinawa I. (26.3°N, 127.8°E)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|------|------|------|-------|-------|-----|-----------|
| 00 | 300 | 5.6 | --- | --- | --- | --- | 2.7 | 2.7 |
| 01 | 280 | 5.0 | --- | --- | --- | --- | 2.8 | 2.8 |
| 02 | 270 | 4.4 | --- | --- | --- | --- | 2.9 | 2.9 |
| 03 | 260 | 4.0 | --- | --- | --- | --- | 3.0 | 3.0 |
| 04 | 260 | 3.3 | --- | --- | --- | --- | 3.0 | 3.0 |
| 05 | (310) | 3.1 | --- | --- | --- | --- | 2.7 | 2.7 |
| 06 | 280 | 4.8 | --- | --- | --- | --- | 3.0 | 3.0 |
| 07 | 260 | 7.6 | 260 | --- | 130 | 2.1 | 3.2 | 3.2 |
| 08 | 280 | 8.8 | 260 | --- | 120 | (2.8) | 3.6 | 3.2 |
| 09 | 290 | 9.8 | 250 | --- | (120) | 3.2 | 3.8 | 3.0 |
| 10 | 310 | 11.3 | 250 | --- | 130 | (3.3) | 4.3 | 3.0 |
| 11 | 300 | 12.4 | 250 | --- | (130) | (3.4) | 4.0 | 2.8 |
| 12 | 330 | 12.7 | 250 | --- | 130 | (3.5) | 3.8 | 2.9 |
| 13 | 320 | 13.4 | 260 | --- | 130 | (3.5) | 2.8 | 2.8 |
| 14 | 300 | 13.8 | 260 | --- | (130) | 3.4 | 4.0 | 2.9 |
| 15 | 280 | 13.4 | 260 | --- | 130 | 3.1 | 2.9 | 2.9 |
| 16 | 270 | 12.4 | 260 | --- | 130 | (2.6) | 2.9 | 3.0 |
| 17 | 260 | 12.0 | --- | --- | 130 | 2.0 | 2.5 | 3.0 |
| 18 | 250 | 11.8 | --- | --- | --- | --- | 2.9 | 3.0 |
| 19 | 230 | 9.2 | --- | --- | --- | --- | 2.9 | 2.9 |
| 20 | 260 | 8.0 | --- | --- | --- | --- | 2.5 | 2.7 |
| 21 | 270 | 7.2 | --- | --- | --- | --- | 2.4 | 2.8 |
| 22 | 280 | 6.0 | --- | --- | --- | --- | 2.2 | 2.6 |
| 23 | 310 | 5.4 | --- | --- | --- | --- | --- | 2.6 |

Time: 127.5°E.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 12

Maui, Hawaii (20.8°N, 156.5°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|-------|-----|-----|-----|-----------|
| 00 | 260 | 4.1 | --- | --- | --- | --- | 3.0 | 3.0 |
| 01 | 240 | 3.8 | --- | --- | --- | --- | 3.2 | 3.2 |
| 02 | 250 | 2.9 | --- | --- | --- | --- | 1.6 | 3.1 |
| 03 | 260 | 2.5 | --- | --- | --- | --- | 2.3 | 3.1 |
| 04 | 280 | 2.4 | --- | --- | --- | --- | 1.8 | 2.9 |
| 05 | 310 | 2.3 | --- | --- | --- | --- | 2.0 | 2.7 |
| 06 | 300 | 3.0 | --- | --- | --- | --- | --- | 2.8 |
| 07 | 250 | 6.6 | --- | --- | 130 | 2.1 | 2.6 | 3.2 |
| 08 | 260 | 8.4 | 230 | --- | 120 | 2.7 | 4.4 | 3.2 |
| 09 | 280 | 9.5 | 220 | (4.6) | 120 | 3.1 | 4.2 | 3.0 |
| 10 | 300 | 10.8 | 220 | (4.8) | 120 | 3.3 | 4.6 | 2.9 |
| 11 | 290 | 12.6 | 220 | (4.9) | 120 | 3.5 | 5.0 | 3.0 |
| 12 | 300 | 12.4 | 210 | (5.0) | 120 | 3.5 | 4.8 | 3.0 |
| 13 | 300 | 13.2 | 220 | 5.0 | 120 | 3.5 | 4.6 | 3.0 |
| 14 | 290 | 13.9 | 230 | 4.9 | 120 | 3.4 | 4.8 | 3.0 |
| 15 | 270 | 13.9 | 230 | 4.7 | 120 | 3.2 | 4.8 | 3.1 |
| 16 | 250 | 13.0 | 230 | --- | 110 | 2.8 | 5.2 | 3.2 |
| 17 | 240 | 11.4 | --- | --- | 120 | 2.3 | 4.4 | 3.2 |
| 18 | 220 | 9.4 | --- | --- | --- | --- | 3.5 | 3.4 |
| 19 | 220 | 7.6 | --- | --- | --- | --- | 4.0 | 3.1 |
| 20 | 240 | 6.4 | --- | --- | --- | --- | 3.0 | 2.8 |
| 21 | 250 | 5.6 | --- | --- | --- | --- | 2.4 | 2.8 |
| 22 | 260 | 5.0 | --- | --- | --- | --- | 1.7 | 2.9 |
| 23 | 260 | 4.5 | --- | --- | --- | --- | --- | 3.0 |

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 13

Puerto Rico, W.I. (18.5°N, 67.2°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 260 | 4.7 | | | | | | 3.0 |
| 01 | 250 | 4.8 | | | | | | 3.0 |
| 02 | 220 | 4.7 | | | | | | 3.3 |
| 03 | 220 | 4.1 | | | | | | 3.3 |
| 04 | 240 | 3.5 | | | | | | 3.0 |
| 05 | 270 | 3.3 | | | | | | 2.9 |
| 06 | 250 | 3.5 | | | | | | 3.0 |
| 07 | 220 | 6.5 | --- | --- | 110 | 2.0 | | 3.5 |
| 08 | 220 | 7.7 | 220 | --- | 100 | 2.6 | | 3.5 |
| 09 | 260 | 8.5 | 210 | --- | 100 | 3.1 | | 3.3 |
| 10 | 250 | 9.4 | 210 | 4.6 | 100 | 3.4 | | 3.3 |
| 11 | 260 | 10.3 | 200 | 4.8 | 100 | 3.5 | | 3.2 |
| 12 | 260 | 10.3 | 210 | 4.8 | 100 | 3.6 | | 3.1 |
| 13 | 270 | 10.8 | 210 | 4.9 | 100 | 3.5 | | 3.1 |
| 14 | 270 | 11.3 | 210 | 4.8 | 100 | 3.4 | | 3.1 |
| 15 | 260 | 11.5 | 220 | --- | 100 | 3.2 | | 3.2 |
| 16 | 240 | 10.8 | 210 | --- | 100 | 2.9 | 3.6 | 3.2 |
| 17 | 220 | 10.0 | 220 | --- | 100 | 2.4 | 3.5 | 3.3 |
| 18 | 210 | 9.1 | | | --- | --- | 2.6 | 3.3 |
| 19 | 210 | 7.0 | | | | | 2.7 | 3.2 |
| 20 | 220 | 5.4 | | | | | | 3.1 |
| 21 | 250 | 5.0 | | | | | | 2.9 |
| 22 | 270 | 4.8 | | | | | | 2.9 |
| 23 | 260 | 4.7 | | | | | | 3.0 |

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 14

Huancayo, Peru (12.0°S, 75.3°W)

October 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|--------|------|-------|-----|-----|-----|-----------|
| 00 | 240 | 9.1 | | | | | | 3.2 |
| 01 | 220 | 8.0 | | | | | 2.9 | 3.2 |
| 02 | 250 | 6.2 | | | | | | 3.2 |
| 03 | 240 | 5.5 | | | | | | 3.2 |
| 04 | 250 | 5.2 | | | | | 2.5 | 3.2 |
| 05 | 270 | 4.0 | | | | | 2.9 | 3.2 |
| 06 | 260 | 6.9 | | | 100 | 2.1 | | 3.2 |
| 07 | 240 | 9.3 | --- | --- | 100 | 2.7 | | 3.3 |
| 08 | 290 | 10.8 | 220 | --- | 100 | 3.1 | | 5.5 |
| 09 | 300 | 11.2 | 210 | (4.9) | 100 | --- | 8.0 | 2.8 |
| 10 | 300 | 10.6 | 210 | 4.9 | 100 | --- | 8.0 | 2.5 |
| 11 | 300 | 10.2 | 210 | 4.9 | 100 | --- | 8.1 | 2.5 |
| 12 | 310 | 10.0 | 210 | 4.9 | 100 | --- | 8.0 | 2.5 |
| 13 | 300 | 10.1 | 200 | 4.9 | 100 | --- | 8.0 | 2.5 |
| 14 | 300 | 10.6 | 200 | (4.8) | 100 | --- | 8.0 | 2.5 |
| 15 | 290 | 11.2 | 210 | --- | 100 | 3.1 | 7.8 | 2.5 |
| 16 | 220 | 11.2 | | | 100 | 2.7 | 5.5 | 2.5 |
| 17 | 270 | 10.8 | | | 100 | 2.2 | 4.6 | 2.5 |
| 18 | 300 | 10.6 | | | 100 | --- | | 2.6 |
| 19 | 350 | 11.3 | | | | | | 2.4 |
| 20 | 310 | (11.1) | | | | | | (2.4) |
| 21 | 290 | 9.6 | | | | | | 2.7 |
| 22 | 270 | (9.0) | | | | | | (2.8) |
| 23 | 250 | (10.4) | | | | | | (3.0) |

Time: 75.0°W.

Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Table 15

Fairbanks, Alaska (64.9°N, 147.8°W)

September 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|-------|-------|-----|-----|-----|-----------|
| 00 | (420) | (4.3) | | | | | 4.9 | --- |
| 01 | (420) | (3.8) | | | | | 4.6 | (2.4) |
| 02 | 480 | (3.6) | | | | | 4.6 | (2.3) |
| 03 | (420) | (3.6) | | | | | 5.0 | (2.3) |
| 04 | (430) | (3.9) | | | | | 4.6 | (2.4) |
| 05 | (370) | (4.0) | | | | | | (2.5) |
| 06 | (430) | 4.4 | --- | --- | --- | --- | | (2.5) |
| 07 | (410) | (4.8) | 300 | --- | --- | --- | | (2.6) |
| 08 | (410) | (5.1) | 300 | --- | --- | --- | | (2.5) |
| 09 | (460) | (5.2) | (300) | (3.9) | --- | --- | | (2.4) |
| 10 | 460 | (5.2) | (310) | (4.0) | --- | --- | | (2.5) |
| 11 | 460 | 5.6 | 300 | (4.2) | --- | --- | | 2.5 |
| 12 | 460 | 5.5 | 300 | (4.2) | --- | --- | | 2.5 |
| 13 | 440 | (5.7) | 310 | --- | --- | --- | | (2.5) |
| 14 | 430 | 5.2 | 310 | --- | --- | --- | | 2.5 |
| 15 | 430 | (5.2) | 330 | (3.8) | --- | --- | | (2.6) |
| 16 | 400 | (5.0) | 300 | --- | --- | --- | | (2.7) |
| 17 | 360 | (5.2) | --- | --- | --- | --- | | 2.7 |
| 18 | 340 | 5.3 | | | | | | (2.6) |
| 19 | 340 | (5.2) | | | | | 3.1 | (2.6) |
| 20 | 360 | (4.6) | | | | | 3.8 | (2.6) |
| 21 | (340) | (4.4) | | | | | 4.6 | (2.5) |
| 22 | (350) | (4.6) | | | | | 5.0 | (2.5) |
| 23 | (400) | (4.0) | | | | | 4.5 | (2.4) |

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 16

Churchill, Canada (58.8°N, 94.2°W)

September 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 4.2 | | | --- | --- | 6.0 | (2.9) |
| 01 | 300 | 3.4 | | | --- | --- | 6.4 | 3.0 |
| 02 | 300 | 3.0 | | | --- | --- | 4.3 | 3.0 |
| 03 | 310 | 2.6 | | | 140 | 2.6 | 4.4 | (3.1) |
| 04 | 290 | 3.1 | | | 110 | 2.0 | 3.4 | 3.2 |
| 05 | 300 | 3.3 | --- | --- | 120 | 2.8 | 2.5 | 3.0 |
| 06 | 300 | 4.0 | --- | --- | 110 | 2.6 | 2.0 | 3.0 |
| 07 | 320 | 4.4 | 250 | 3.2 | 110 | 3.0 | | 2.9 |
| 08 | 330 | 4.9 | 240 | 3.7 | 110 | 3.0 | | 2.9 |
| 09 | 340 | 5.1 | 230 | 4.1 | 110 | 3.0 | | 2.9 |
| 10 | 360 | 5.5 | 220 | 4.2 | 100 | 3.0 | | 2.9 |
| 11 | 380 | 5.8 | 210 | 4.4 | 100 | 3.0 | | 2.8 |
| 12 | 360 | 5.8 | 230 | 4.3 | 100 | 3.0 | | 2.8 |
| 13 | 360 | 6.0 | 220 | 4.1 | 100 | 3.0 | | 2.8 |
| 14 | 360 | 6.0 | 230 | 4.0 | 110 | 3.0 | | 2.8 |
| 15 | 360 | 6.2 | 230 | 4.0 | 110 | 3.0 | | 2.8 |
| 16 | 320 | 6.0 | 240 | 4.0 | 110 | 2.8 | | 2.8 |
| 17 | 300 | 5.3 | 270 | --- | 110 | 2.8 | | 2.8 |
| 18 | 300 | 5.0 | --- | --- | 120 | 2.8 | | 3.0 |
| 19 | 290 | 4.5 | | | 110 | 2.9 | 7.7 | 2.9 |
| 20 | 280 | 4.1 | | | 120 | 2.8 | 7.9 | 3.0 |
| 21 | 300 | 4.0 | | | 120 | 2.8 | 7.0 | 2.9 |
| 22 | 300 | 3.4 | | | --- | --- | 7.9 | 2.9 |
| 23 | 320 | 3.7 | | | | | 7.8 | (2.8) |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 17

Prince Rupert, Canada (54.3°N, 130.3°W)

September 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 350 | 3.0 | | | | | 2.5 | 3.0 |
| 01 | 330 | 3.0 | | | | | 2.2 | 3.0 |
| 02 | 340 | 2.8 | | | | | 2.0 | 3.0 |
| 03 | 340 | 2.3 | | | | | 2.3 | 3.0 |
| 04 | 350 | 2.2 | | | | | 2.0 | 2.8 |
| 05 | 390 | 2.7 | | | | | 2.0 | 2.9 |
| 06 | 300 | 3.0 | | | | | 1.6 | 3.0 |
| 07 | 300 | 4.0 | 260 | 3.2 | 110 | 2.2 | | 3.1 |
| 08 | 400 | 4.6 | 230 | 3.7 | 110 | 2.5 | | 3.0 |
| 09 | 400 | 4.8 | 230 | 3.8 | 110 | 2.9 | 1.2 | 3.1 |
| 10 | 400 | 5.1 | 220 | 4.0 | 100 | 3.0 | | 3.0 |
| 11 | 410 | 5.2 | 210 | 4.2 | 110 | 3.2 | | 2.9 |
| 12 | 350 | 5.5 | 210 | 4.3 | 100 | 3.1 | | 3.0 |
| 13 | 370 | 5.5 | 230 | 4.4 | 100 | 3.1 | | 3.2 |
| 14 | 400 | 5.4 | 230 | 4.2 | 100 | 3.1 | | 3.0 |
| 15 | 370 | 5.6 | 220 | 4.2 | 110 | 3.0 | | 3.0 |
| 16 | 310 | 5.8 | 230 | 4.2 | 110 | 2.8 | | 3.0 |
| 17 | 280 | 5.4 | 240 | 4.0 | 110 | 2.6 | | 3.2 |
| 18 | 270 | 5.6 | 230 | --- | 110 | 2.3 | 2.0 | 3.2 |
| 19 | 250 | 5.2 | | | --- | 1.9 | 2.0 | 3.3 |
| 20 | 250 | 4.2 | | | | | 1.5 | 3.2 |
| 21 | 260 | 4.0 | | | | | 2.0 | 3.1 |
| 22 | 270 | 3.0 | | | | | 1.8 | 3.1 |
| 23 | 280 | 3.0 | | | | | 2.1 | 3.0 |

Time: 120.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 18

De Bilt, Holland (52.1°N, 5.2°E)

September 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|-------|------|------|-----|-----|-----|-----------|
| 00 | 300 | (3.0) | | | | | | 2.8 |
| 01 | 310 | (3.0) | | | | | 2.3 | 2.7 |
| 02 | 300 | (3.0) | | | | | | 2.8 |
| 03 | 295 | (3.0) | | | | | 2.2 | 2.8 |
| 04 | 280 | (3.0) | | | | | 2.7 | 2.9 |
| 05 | 280 | 3.2 | | | --- | E | 3.0 | 3.1 |
| 06 | 270 | 4.6 | 250 | 3.4 | 115 | 2.1 | 3.4 | 3.2 |
| 07 | 280 | 5.1 | 230 | 4.0 | 110 | 2.5 | 3.6 | 3.2 |
| 08 | 300 | 5.6 | 220 | 4.0 | 105 | 2.8 | 3.9 | 3.2 |
| 09 | 310 | 5.6 | 215 | 4.3 | 105 | 3.0 | 4.0 | 3.0 |
| 10 | 360 | 5.7 | 205 | 4.5 | 105 | 3.1 | 4.0 | 3.0 |
| 11 | 315 | 6.1 | 210 | 4.5 | 105 | 3.2 | 4.0 | 3.0 |
| 12 | 310 | 6.5 | 205 | 4.5 | 105 | 3.2 | 4.0 | 3.0 |
| 13 | 305 | 6.4 | 210 | 4.5 | 105 | 3.2 | 4.0 | 3.1 |
| 14 | 300 | 6.5 | 210 | 4.4 | 105 | 3.0 | 3.7 | 3.0 |
| 15 | 300 | 6.3 | 220 | 4.0 | 105 | 2.9 | | 3.1 |
| 16 | 265 | 6.4 | 240 | 3.8 | 105 | 2.6 | | 3.1 |
| 17 | 260 | 6.5 | 250 | --- | 125 | 2.1 | | 3.1 |
| 18 | 250 | 6.2 | | | --- | E | 2.8 | 3.1 |
| 19 | 250 | >6.0 | | | | | 2.4 | 3.0 |
| 20 | 245 | 5.2 | | | | | | 3.0 |
| 21 | 260 | 4.5 | | | | | | 2.9 |
| 22 | 290 | 3.9 | | | | | | 2.8 |
| 23 | 300 | (3.6) | | | | | | 2.8 |

Time: 0.0°W.

Sweep: 1.4 Mc to 16.0 Mc in 7 minutes, automatic operation.

Table 19

| Adak, Alaska (51.9°N, 176.6°W) | | | | | | | |
|--------------------------------|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 300 | 3.2 | | | | | 2.2 |
| 01 | 320 | 3.2 | | | | | 2.7 |
| 02 | 320 | 2.9 | | | | | 2.0 |
| 03 | 320 | 2.8 | | | | | 2.6 |
| 04 | 320 | 2.6 | | | | | 2.0 |
| 05 | 300 | 2.8 | 360 | --- | --- | --- | 2.4 |
| 06 | 280 | 3.9 | 260 | --- | 120 | 1.8 | 2.3 |
| 07 | 280 | 4.4 | 240 | 3.5 | 110 | 2.2 | 2.4 |
| 08 | 380 | 4.6 | 230 | 3.8 | 110 | 2.7 | 3.8 |
| 09 | 440 | 4.6 | 220 | 4.1 | 110 | 2.9 | 4.2 |
| 10 | 500 | 4.8 | 220 | 4.2 | 110 | 3.1 | 4.0 |
| 11 | 410 | 5.2 | 210 | 4.3 | 110 | 3.1 | 4.0 |
| 12 | 360 | 5.5 | 210 | 4.3 | 110 | 3.1 | 4.0 |
| 13 | 320 | 6.0 | 220 | 4.3 | 110 | 3.0 | 3.8 |
| 14 | 300 | 5.7 | 220 | 4.2 | 110 | 3.0 | 3.9 |
| 15 | 300 | 6.2 | 230 | 4.0 | 110 | 2.7 | 3.4 |
| 16 | 280 | 6.0 | 240 | 3.9 | 110 | 2.4 | 3.1 |
| 17 | 250 | 5.9 | 250 | --- | 120 | 1.9 | 2.4 |
| 18 | 250 | 5.6 | | | 130 | 1.4 | 2.6 |
| 19 | 250 | 4.7 | | | | | 2.3 |
| 20 | 260 | 4.9 | | | | | 2.2 |
| 21 | 260 | 4.0 | | | | | 1.8 |
| 22 | 260 | 3.7 | | | | | 2.8 |
| 23 | 280 | 3.4 | | | | | 1.9 |

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 18 seconds.

Table 21

| St. John's, Newfoundland (47.6°N, 52.7°W) | | | | | | | |
|---|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 300 | 3.4 | | | | | 1.8 |
| 01 | 300 | 3.4 | | | | | 2.0 |
| 02 | 300 | 3.0 | | | | | 1.6 |
| 03 | 290 | 2.7 | | | | | 1.3 |
| 04 | 260 | 2.3 | | | | | 1.3 |
| 05 | 270 | 3.2 | | | | | 1.8 |
| 06 | 260 | 4.2 | 230 | --- | 110 | 2.3 | 2.0 |
| 07 | 290 | 5.0 | 230 | 3.7 | 110 | 2.6 | 3.2 |
| 08 | 310 | 5.3 | 230 | 4.0 | 110 | 3.0 | 3.1 |
| 09 | 300 | 5.8 | 210 | 4.3 | 110 | 3.2 | 3.1 |
| 10 | 330 | 6.0 | 210 | 4.5 | 110 | 3.3 | 3.1 |
| 11 | 360 | 6.1 | 210 | 4.5 | 110 | 3.3 | 3.0 |
| 12 | 340 | 6.3 | 220 | 4.6 | 110 | 3.4 | 3.0 |
| 13 | 340 | 6.4 | 220 | 4.3 | 110 | 3.4 | 2.9 |
| 14 | 320 | 6.5 | 220 | 4.2 | 110 | 3.2 | 2.9 |
| 15 | 310 | 6.8 | 230 | 4.0 | 110 | 3.0 | 3.0 |
| 16 | 300 | 6.9 | 240 | 3.8 | 110 | 2.7 | 3.0 |
| 17 | 280 | 7.0 | 250 | 3.5 | 120 | 2.3 | 1.8 |
| 18 | 270 | 7.2 | | | --- | --- | 1.9 |
| 19 | 260 | 6.5 | | | | | 1.7 |
| 20 | 260 | 5.2 | | | | | 1.6 |
| 21 | 280 | 4.6 | | | | | 1.7 |
| 22 | 280 | 3.9 | | | | | 1.7 |
| 23 | 300 | 3.5 | | | | | 1.6 |

Time: 60.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 23

| Okinawa I. (26.3°N, 127.8°E) | | | | | | | |
|------------------------------|------|-------|------|------|-------|-------|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 280 | >6.8 | | | | | 2.7 |
| 01 | 270 | 6.2 | | | | | 2.0 |
| 02 | 270 | 5.2 | | | | | 2.0 |
| 03 | 260 | 4.8 | | | | | 1.8 |
| 04 | 260 | 4.4 | | | | | 1.6 |
| 05 | 260 | 3.8 | | | | | 2.9 |
| 06 | 250 | 5.8 | | | (120) | --- | 3.2 |
| 07 | 240 | 7.6 | --- | --- | (120) | 2.5 | 3.5 |
| 08 | 250 | 8.0 | 230 | --- | 110 | 3.0 | 4.1 |
| 09 | 280 | 8.0 | 230 | --- | (110) | 3.4 | 4.4 |
| 10 | 320 | 9.4 | 230 | --- | 110 | 3.6 | 4.8 |
| 11 | 320 | 11.1 | 230 | --- | 110 | (3.6) | 4.4 |
| 12 | 330 | 11.5 | 230 | --- | 110 | --- | 4.1 |
| 13 | 310 | 12.0 | 230 | --- | 110 | 3.6 | 2.9 |
| 14 | 320 | 12.2 | 230 | --- | 120 | (3.5) | 3.8 |
| 15 | 310 | 12.2 | 240 | --- | 120 | (3.3) | 3.0 |
| 16 | 290 | 12.8 | 250 | --- | 110 | 2.9 | 4.0 |
| 17 | 260 | 12.8 | 240 | --- | 110 | 2.4 | 4.0 |
| 18 | 250 | 11.8 | | | --- | --- | 3.6 |
| 19 | 240 | 9.7 | | | | | 3.0 |
| 20 | 240 | (8.6) | | | | | 2.9 |
| 21 | 280 | 7.9 | | | | | 2.8 |
| 22 | 290 | 7.3 | | | | | 2.7 |
| 23 | 300 | 7.0 | | | | | 2.9 |

Time: 127.5°E.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 20

| Winnipeg, Canada (49.9°N, 97.4°W) | | | | | | | |
|-----------------------------------|-------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 300 | 2.8 | | | | | 3.2 |
| 01 | (320) | 2.6 | | | | | 3.8 |
| 02 | 310 | 2.6 | | | | | 3.6 |
| 03 | 320 | 3.5 | | | | | 3.3 |
| 04 | 300 | 3.1 | | | | | 3.2 |
| 05 | 300 | 2.8 | | | --- | --- | 2.2 |
| 06 | 290 | 3.2 | | | 120 | 1.8 | 1.9 |
| 07 | 280 | 4.2 | --- | --- | 120 | 2.2 | 2.1 |
| 08 | 320 | 4.7 | 230 | 4.0 | 110 | 2.6 | 3.1 |
| 09 | 360 | 5.0 | 220 | 4.0 | 110 | 3.0 | 1.8 |
| 10 | 380 | 5.4 | 220 | 4.4 | 110 | 3.1 | 2.5 |
| 11 | 380 | 5.7 | 210 | 4.4 | 110 | 3.2 | 2.8 |
| 12 | 400 | 5.8 | 220 | 4.6 | 110 | 3.2 | 2.0 |
| 13 | 380 | 6.2 | 220 | 4.6 | 110 | 3.4 | 2.6 |
| 14 | 370 | 6.0 | 220 | 4.4 | 110 | 3.2 | 2.0 |
| 15 | 360 | 6.0 | 230 | 4.2 | 110 | 3.0 | 2.6 |
| 16 | 350 | 6.0 | 230 | 4.1 | 110 | 3.0 | 2.0 |
| 17 | 300 | 6.0 | 240 | 3.9 | 120 | 2.7 | 1.6 |
| 18 | 280 | 5.8 | 260 | --- | 120 | 2.2 | 2.5 |
| 19 | 280 | 5.5 | | | --- | --- | 2.0 |
| 20 | 280 | 5.0 | | | | | 1.9 |
| 21 | 260 | 4.0 | | | | | 1.8 |
| 22 | 260 | 3.4 | | | | | 2.5 |
| 23 | 300 | 3.0 | | | | | 2.9 |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 22

| Schwarzenburg, Switzerland (46.8°N, 7.3°E) | | | | | | | |
|--|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 310 | 3.8 | | | | | 3.0 |
| 01 | 310 | 3.8 | | | | | 3.0 |
| 02 | 300 | 3.6 | | | | | 3.0 |
| 03 | 300 | 3.5 | | | | | 3.0 |
| 04 | 300 | 3.2 | | | | | 3.0 |
| 05 | 300 | 2.8 | | | | | 3.0 |
| 06 | 300 | 3.1 | | | --- | --- | 115 |
| 07 | 250 | 4.3 | | | --- | --- | 105 |
| 08 | 260 | 5.4 | 245 | 3.8 | 105 | 2.6 | 3.0 |
| 09 | 275 | 6.6 | 230 | 4.4 | 100 | 3.0 | 3.0 |
| 10 | 300 | 6.6 | 220 | 4.5 | 100 | 3.0 | 3.0 |
| 11 | 300 | 6.5 | 210 | 4.6 | 100 | 3.2 | 3.0 |
| 12 | 310 | 6.6 | 205 | 4.6 | 100 | 3.3 | 3.0 |
| 13 | 300 | 6.6 | 210 | 4.8 | 100 | 3.4 | 3.0 |
| 14 | 300 | 7.0 | 220 | 4.6 | 100 | 3.2 | 3.0 |
| 15 | 300 | 6.7 | 230 | 4.6 | 100 | 3.2 | 3.0 |
| 16 | 290 | 6.8 | 230 | 4.4 | 100 | 2.8 | 3.0 |
| 17 | 250 | 6.5 | --- | --- | 105 | 2.5 | 2.2 |
| 18 | 250 | 6.6 | | | 120 | 2.2 | --- |
| 19 | 255 | 6.6 | | | --- | --- | --- |
| 20 | 250 | 6.2 | | | | | --- |
| 21 | 250 | 5.6 | | | | | --- |
| 22 | 260 | 4.5 | | | | | --- |
| 23 | 300 | 4.2 | | | | | --- |

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 24

| Johannesburg, Union of S. Africa (26.2°S, 28.1°E) | | | | | | | |
|---|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 260 | 3.4 | | | | | 3.0 |
| 01 | 260 | 3.3 | | | | | 3.0 |
| 02 | 250 | 3.1 | | | | | 3.0 |
| 03 | 260 | 3.0 | | | | | 2.9 |
| 04 | 280 | 2.8 | | | | | 2.9 |
| 05 | 280 | 2.7 | | | | | 2.8 |
| 06 | 260 | 4.1 | | | --- | --- | 1.6 |
| 07 | 240 | 6.7 | 230 | --- | 110 | 2.3 | 3.4 |
| 08 | 250 | 7.4 | 230 | 4.4 | 110 | 2.9 | 3.3 |
| 09 | 270 | 8.3 | 220 | 4.6 | 110 | 3.2 | 3.2 |
| 10 | 280 | 8.9 | 210 | 4.8 | 110 | 3.5 | 3.1 |
| 11 | 290 | 9.2 | 210 | 5.0 | 110 | 3.6 | 3.0 |
| 12 | 290 | 9.9 | 210 | 4.9 | 110 | 3.6 | 4.0 |
| 13 | 280 | 9.5 | 200 | 4.8 | 110 | 3.6 | 3.0 |
| 14 | 290 | 9.6 | 210 | 4.8 | 110 | 3.5 | 3.6 |
| 15 | 280 | 9.2 | 210 | 4.5 | 110 | 3.3 | 4.0 |
| 16 | 260 | 9.0 | 220 | 4.0 | 110 | 3.0 | 3.6 |
| 17 | 240 | 8.5 | 230 | --- | 110 | 2.5 | 3.2 |
| 18 | 230 | 7.9 | | | --- | --- | 1.8 |
| 19 | 230 | 7.0 | | | | | 3.2 |
| 20 | 230 | 5.6 | | | | | 3.2 |
| 21 | 250 | 4.6 | | | | | 3.1 |
| 22 | 260 | 3.8 | | | | | 3.1 |
| 23 | 260 | 3.4 | | | | | 3.0 |

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 25
Capetown, Union of S. Africa (34.2°S, 18.3°E)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 280 | 3.0 | | | | | | 2.9 |
| 01 | 280 | 3.0 | | | | | | 2.9 |
| 02 | 280 | 3.1 | | | | | | 2.9 |
| 03 | 270 | 3.1 | | | | | | 2.9 |
| 04 | 270 | 3.0 | | | | | | 2.8 |
| 05 | 280 | 3.0 | | | | | | 2.8 |
| 06 | 270 | 3.0 | | | | | | 2.9 |
| 07 | 240 | 5.0 | | | | 1.9 | | 3.2 |
| 08 | 240 | 6.6 | 240 | --- | 120 | 2.5 | | 3.3 |
| 09 | 260 | 7.2 | 230 | 4.3 | 110 | 2.9 | | 3.2 |
| 10 | 280 | 7.6 | 220 | 4.6 | 110 | 3.2 | | 3.1 |
| 11 | 290 | 8.8 | 220 | 4.7 | 110 | 3.4 | | 2.9 |
| 12 | 300 | 9.4 | 220 | 4.8 | 110 | 3.5 | | 2.9 |
| 13 | 290 | 9.8 | 220 | 4.8 | 110 | 3.5 | | 2.9 |
| 14 | 290 | 10.0 | 220 | 4.7 | 110 | 3.4 | 3.7 | 3.0 |
| 15 | 280 | 9.9 | 220 | 4.6 | 110 | 3.3 | 3.7 | 2.9 |
| 16 | 270 | 9.4 | 220 | 4.2 | 110 | 3.1 | 3.6 | 3.0 |
| 17 | 250 | 8.9 | 230 | 3.7 | 120 | 2.7 | 3.2 | 3.1 |
| 18 | 240 | 8.2 | | | 120 | 2.1 | | 3.2 |
| 19 | 230 | 7.2 | | | | | | 3.2 |
| 20 | 230 | 5.6 | | | | | | 3.1 |
| 21 | 240 | 4.2 | | | | | | 3.0 |
| 22 | 250 | 3.6 | | | | | | 3.1 |
| 23 | 260 | 3.2 | | | | | | 2.9 |

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 26
Kiruna, Sweden (67.8°N, 20.5°E)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | --- | | | | | | | 4.2 |
| 01 | (310) | (4.3) | | | | | | 3.9 |
| 02 | 310 | 4.2 | | | | | | 3.9 |
| 03 | 300 | 4.1 | | | | | | 2.4 |
| 04 | (315) | 4.1 | 240 | --- | --- | --- | | 2.1 |
| 05 | (360) | 4.4 | 230 | 3.3 | 105 | 2.0 | | |
| 06 | 395 | 4.9 | 230 | 3.8 | 100 | 2.2 | | |
| 07 | 365 | 5.2 | 220 | 4.0 | 100 | 2.4 | | |
| 08 | 355 | 5.4 | 210 | 4.1 | 100 | 2.6 | | |
| 09 | 350 | 5.6 | 205 | 4.2 | 100 | 2.7 | 3.0 | |
| 10 | 350 | 5.7 | 200 | 4.2 | 100 | 2.8 | 3.0 | |
| 11 | 350 | 5.8 | 200 | 4.3 | 100 | 2.9 | 3.1 | |
| 12 | 340 | 5.9 | 200 | 4.3 | 100 | 2.9 | 3.1 | |
| 13 | 345 | 5.7 | 200 | 4.3 | 100 | 2.8 | | |
| 14 | 330 | 5.4 | 200 | 4.2 | 100 | 2.9 | | |
| 15 | 350 | 5.3 | 210 | 4.1 | 100 | 2.8 | | |
| 16 | (310) | 5.2 | 215 | 4.0 | 100 | 2.7 | 2.8 | |
| 17 | (320) | 5.1 | 230 | 3.8 | 105 | 2.3 | 3.0 | |
| 18 | 310 | 5.0 | 240 | --- | 100 | 2.1 | 4.0 | |
| 19 | (305) | 5.0 | 250 | --- | 105 | 2.0 | 3.9 | |
| 20 | (300) | 4.9 | 250 | --- | 105 | 1.9 | 4.0 | |
| 21 | 290 | 4.5 | | | | | 3.3 | |
| 22 | (290) | (4.4) | | | | | 3.9 | |
| 23 | (305) | (4.3) | | | | | 4.2 | |

Time: 15.0°E.

Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 27
Baker Lake, Canada (64.3°N, 96.0°W)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 310 | 4.7 | | | | | 3.5 | 2.7 |
| 01 | 310 | 4.4 | | | | | 4.0 | (2.7) |
| 02 | 300 | 4.1 | --- | --- | --- | --- | 3.7 | 2.7 |
| 03 | 320 | 3.8 | --- | --- | --- | --- | 4.2 | 2.8 |
| 04 | 340 | 4.0 | --- | --- | --- | --- | 3.2 | 2.8 |
| 05 | 330 | 3.8 | 310 | --- | 140 | 2.0 | 1.9 | 2.8 |
| 06 | 320 | 4.0 | 300 | 3.5 | 120 | 2.3 | 2.3 | 2.8 |
| 07 | 500 | 4.6 | 280 | 3.8 | 120 | 2.6 | | 2.7 |
| 08 | 600 | 4.8 | 280 | 3.8 | 120 | 2.9 | | 2.7 |
| 09 | 570 | 4.8 | 260 | 3.9 | 120 | 3.0 | | (2.5) |
| 10 | 600 | 4.9 | 280 | 4.0 | 110 | 3.2 | | 2.5 |
| 11 | 530 | 5.0 | 260 | 4.0 | 110 | 3.2 | | 2.5 |
| 12 | 520 | 5.1 | 280 | 4.1 | 110 | 3.2 | | 2.5 |
| 13 | 500 | 5.2 | 260 | 4.2 | 120 | 3.2 | | 2.6 |
| 14 | 430 | 5.6 | 250 | 4.2 | 110 | 3.2 | | 2.7 |
| 15 | 460 | 5.6 | 250 | 4.1 | 120 | 3.1 | | 2.7 |
| 16 | 440 | 5.6 | 260 | 4.0 | 120 | 3.1 | | 2.6 |
| 17 | 460 | 5.0 | 260 | 3.8 | 120 | 2.8 | 3.0 | 2.6 |
| 18 | 330 | 5.0 | 280 | 3.8 | 120 | 2.5 | 5.7 | 2.6 |
| 19 | 320 | 5.2 | 300 | --- | 140 | 2.3 | 7.1 | 2.7 |
| 20 | 320 | 5.0 | --- | --- | 140 | --- | 6.2 | 2.8 |
| 21 | 300 | 5.0 | --- | --- | --- | --- | 5.5 | 2.8 |
| 22 | 310 | 4.2 | | | | | 5.2 | 2.8 |
| 23 | 300 | 4.9 | | | | | 4.0 | 2.7 |

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 28
Churchill, Canada (58.8°N, 94.2°W)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 270 | 4.0 | | | --- | --- | 7.4 | 3.2 |
| 01 | 280 | 4.0 | | | --- | --- | 6.0 | 2.9 |
| 02 | 300 | 3.4 | | | --- | --- | 5.0 | 3.1 |
| 03 | 300 | 3.6 | | | --- | --- | 4.0 | 3.0 |
| 04 | 300 | 3.3 | | | 110 | 2.0 | 3.0 | 3.2 |
| 05 | 300 | 3.9 | --- | --- | 110 | 2.8 | 2.1 | 3.1 |
| 06 | 320 | 4.0 | 220 | 3.4 | 100 | 2.9 | | 3.0 |
| 07 | 330 | 4.8 | 220 | 4.0 | 100 | 3.0 | | 3.0 |
| 08 | 400 | 5.0 | 210 | 4.1 | 100 | 3.1 | | (2.8) |
| 09 | 400 | 5.0 | 200 | 4.3 | 100 | 3.2 | | 2.9 |
| 10 | 410 | 5.2 | 210 | 4.4 | 100 | 3.2 | | 2.7 |
| 11 | 400 | 5.3 | 220 | 4.3 | 100 | 3.2 | | 2.7 |
| 12 | 400 | 5.6 | 200 | 4.5 | 100 | 3.3 | | 2.8 |
| 13 | 400 | 5.7 | 210 | 4.4 | 100 | 3.3 | | 2.9 |
| 14 | 390 | 5.8 | 210 | 4.4 | 100 | 3.2 | | 2.8 |
| 15 | 380 | 6.0 | 210 | 4.2 | 100 | 3.2 | | 2.8 |
| 16 | 370 | 5.8 | 220 | 4.1 | 100 | 3.0 | | 2.8 |
| 17 | 360 | 5.6 | 220 | 4.0 | 100 | 3.0 | | 2.9 |
| 18 | 320 | 5.2 | 250 | 4.0 | 110 | 3.0 | | 2.9 |
| 19 | 310 | 5.0 | 280 | --- | 110 | 3.0 | | 2.9 |
| 20 | 300 | 4.8 | | | 110 | 2.9 | 3.8 | 3.0 |
| 21 | 300 | 4.5 | | | 120 | 2.7 | 6.0 | 3.0 |
| 22 | 270 | 4.0 | | | --- | --- | 6.0 | 3.0 |
| 23 | 280 | 3.8 | | | --- | --- | 8.2 | 3.2 |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 29
Fort Chimo, Canada (58.1°N, 68.3°W)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-------|-----------|
| 00 | 290 | 3.2 | | | | | 5.7 | --- |
| 01 | 290 | 4.0 | | | --- | --- | 4.4 | --- |
| 02 | 300 | 3.2 | | | --- | --- | 4.0 | (2.7) |
| 03 | 310 | 3.0 | --- | --- | 110 | 2.9 | 4.0 | --- |
| 04 | 300 | 3.5 | --- | --- | 100 | 3.6 | (2.9) | --- |
| 05 | 300 | 4.0 | --- | --- | 100 | 3.3 | 4.8 | (3.0) |
| 06 | 320 | 4.6 | 260 | --- | 100 | 3.3 | 4.1 | (2.9) |
| 07 | 340 | 4.8 | 200 | 4.0 | 100 | 3.2 | 3.5 | 2.9 |
| 08 | 360 | 5.2 | 200 | 4.3 | 90 | 3.3 | | 2.9 |
| 09 | 400 | 5.0 | 200 | 4.4 | 90 | 3.2 | | 2.8 |
| 10 | 360 | 5.3 | 200 | 4.4 | 100 | 3.2 | | 2.8 |
| 11 | 380 | 5.4 | 200 | 4.5 | 90 | 3.4 | | 2.8 |
| 12 | 380 | 5.6 | 200 | 4.4 | 100 | 3.6 | 3.2 | 2.8 |
| 13 | 380 | 5.8 | 200 | 4.3 | 90 | 3.3 | | 2.8 |
| 14 | 390 | 5.7 | 200 | 4.3 | 100 | 3.3 | | 2.7 |
| 15 | 380 | 5.4 | 200 | 4.2 | 100 | 3.2 | | 2.7 |
| 16 | 370 | 5.2 | 220 | 4.0 | 100 | 2.8 | | 2.7 |
| 17 | 320 | 5.2 | 220 | 3.8 | 100 | 3.0 | 3.8 | 2.7 |
| 18 | 310 | 5.0 | 260 | 3.7 | 100 | 2.9 | | 2.7 |
| 19 | 300 | 4.8 | --- | --- | 100 | 2.8 | 3.2 | (2.9) |
| 20 | 270 | 4.6 | | | --- | --- | 5.0 | --- |
| 21 | 280 | 4.0 | | | --- | --- | 4.8 | --- |
| 22 | 290 | 3.7 | | | | | 5.2 | --- |
| 23 | 260 | 4.0 | | | | | 5.4 | --- |

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 30
Prince Rupert, Canada (54.3°N, 130.3°W)

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 280 | 3.0 | | | --- | --- | 1.4 | 2.8 |
| 01 | 300 | 2.9 | | | --- | --- | 1.7 | 3.0 |
| 02 | 330 | 2.7 | | | --- | --- | 1.2 | 2.8 |
| 03 | 330 | 2.4 | | | --- | --- | 2.2 | 2.9 |
| 04 | 310 | 2.5 | | | --- | --- | 1.8 | 2.9 |
| 05 | 300 | 3.0 | --- | --- | 120 | 1.6 | 1.9 | 2.8 |
| 06 | 410 | 3.5 | 260 | 3.0 | 110 | 2.0 | 2.0 | 2.7 |
| 07 | 420 | 4.2 | 230 | 3.6 | 110 | 2.4 | | 2.7 |
| 08 | 420 | 4.5 | 220 | 3.8 | 100 | 2.8 | | 2.6 |
| 09 | 480 | 4.8 | 210 | 4.0 | 100 | 3.0 | | 2.6 |
| 10 | 490 | 5.0 | 200 | 4.2 | 100 | 3.1 | 3.3 | 2.6 |
| 11 | 460 | 5.1 | 210 | 4.3 | 100 | 3.2 | | 2.6 |
| 12 | 440 | 5.3 | 210 | 4.4 | 100 | 3.2 | | 2.8 |
| 13 | 450 | 5.3 | 220 | 4.5 | 110 | 3.3 | | 2.8 |
| 14 | 420 | 5.2 | 210 | 4.4 | 100 | 3.3 | | 2.8 |
| 15 | 440 | 5.2 | 210 | 4.3 | 100 | 3.2 | | 2.7 |
| 16 | 400 | 5.2 | 220 | 4.2 | 100 | 3.0 | | 2.9 |
| 17 | 360 | 5.3 | 220 | 4.2 | 110 | 3.0 | | 3.0 |
| 18 | 310 | 5.2 | 240 | 3.8 | 110 | 2.5 | | 3.0 |
| 19 | 270 | 5.1 | 240 | 3.6 | 110 | 2.2 | 2.2 | 3.0 |
| 20 | 260 | 5.0 | | | 140 | 1.8 | 2.4 | 3.2 |
| 21 | 260 | 4.8 | | | --- | --- | 2.0 | 3.0 |
| 22 | 260 | 4.4 | | | --- | --- | 3.1 | 3.0 |
| 23 | 280 | 3.3 | | | --- | --- | 2.5 | 3.0 |

Time: 120.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 31

Winnipeg, Canada (49.9°N, 97.4°W)

August 1951*

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | (330) | (2.4) | | | | | (1.9) | --- |
| 01 | (310) | (3.0) | | | | | (3.0) | --- |
| 02 | --- | (3.0) | | | | | 2.3 | --- |
| 03 | --- | --- | | | | | (2.5) | --- |
| 04 | --- | --- | | | | | (3.3) | --- |
| 05 | (350) | (3.1) | --- | --- | --- | --- | (2.7) | --- |
| 06 | --- | (3.3) | --- | --- | --- | --- | (1.8) | --- |
| 07 | --- | --- | --- | --- | --- | --- | --- | --- |
| 08 | --- | --- | --- | --- | --- | --- | --- | --- |
| 09 | --- | --- | --- | --- | --- | --- | (3.0) | --- |
| 10 | --- | --- | 220 | 4.0 | 110 | 3.0 | (2.1) | --- |
| 11 | (440) | (5.0) | 220 | 4.3 | --- | --- | (3.0) | (2.7) |
| 12 | (440) | (5.2) | --- | 4.4 | --- | --- | (3.2) | (2.7) |
| 13 | (430) | (5.0) | 220 | 4.3 | 100 | 3.3 | --- | (2.7) |
| 14 | (400) | (5.0) | 220 | 4.3 | --- | 3.0 | (2.2) | (2.7) |
| 15 | (410) | 5.2 | 220 | 4.2 | 110 | --- | 2.6 | (2.6) |
| 16 | (400) | 5.3 | 220 | 4.2 | --- | --- | 3.0 | (2.6) |
| 17 | 360 | 5.4 | 240 | 3.9 | --- | --- | 2.8 | (2.8) |
| 18 | (300) | 6.0 | --- | --- | --- | --- | 2.8 | (2.7) |
| 19 | (260) | (5.7) | --- | --- | --- | --- | 3.0 | --- |
| 20 | (240) | (5.0) | --- | --- | --- | --- | 2.0 | --- |
| 21 | (270) | (4.5) | --- | --- | --- | --- | 1.8 | --- |
| 22 | (270) | (4.0) | --- | --- | --- | --- | (3.0) | --- |
| 23 | (310) | (3.0) | --- | --- | --- | --- | 2.6 | --- |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Data for 18 (2300) through 31.

Table 32

St. John's, Newfoundland (47.6°N, 52.7°W)

August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 3.3 | | | | | 1.4 | 2.7 |
| 01 | 280 | 3.2 | | | | | 1.6 | 2.8 |
| 02 | 280 | 2.9 | | | | | 2.1 | 2.9 |
| 03 | 290 | 2.8 | --- | --- | --- | --- | 3.1 | 2.7 |
| 04 | 300 | 2.4 | --- | --- | --- | --- | 1.6 | 2.9 |
| 06 | 270 | 3.4 | 240 | --- | 120 | 2.0 | 2.0 | 3.0 |
| 06 | 350 | 4.4 | 230 | 3.6 | 110 | 2.4 | --- | 3.0 |
| 07 | 340 | 5.0 | 220 | 4.0 | 110 | 2.8 | --- | 3.2 |
| 08 | 340 | 5.2 | 210 | 4.3 | 100 | 3.0 | --- | 3.0 |
| 09 | 360 | 5.3 | 200 | 4.4 | 100 | 3.2 | 3.6 | 2.9 |
| 10 | 380 | 5.5 | 200 | 4.6 | 100 | 3.3 | 3.6 | 3.0 |
| 11 | 400 | 5.6 | 200 | 4.7 | 100 | 3.4 | 3.2 | 2.9 |
| 12 | 400 | 5.8 | 210 | 4.6 | 100 | 3.4 | --- | 2.9 |
| 13 | 400 | 5.8 | 210 | 4.6 | 100 | 3.3 | --- | 2.8 |
| 14 | 370 | 6.0 | 210 | 4.6 | 100 | 3.3 | --- | 2.9 |
| 15 | 340 | 6.0 | 210 | 4.4 | 100 | 3.2 | --- | 2.9 |
| 16 | 330 | 6.2 | 220 | 4.2 | 100 | 2.8 | --- | 2.9 |
| 17 | 300 | 6.3 | 240 | 3.8 | 100 | 2.6 | --- | 3.0 |
| 18 | 270 | 6.8 | 250 | 3.2 | 110 | 2.2 | 2.2 | 2.9 |
| 19 | 250 | 7.0 | --- | --- | --- | --- | 1.7 | 3.0 |
| 20 | 240 | 6.4 | --- | --- | --- | --- | 1.6 | 3.0 |
| 21 | 260 | 6.6 | --- | --- | --- | --- | 1.4 | 3.0 |
| 22 | 280 | 5.0 | --- | --- | --- | --- | 1.6 | 2.8 |
| 23 | 300 | 4.2 | --- | --- | --- | --- | 1.7 | 2.8 |

Time: 60.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 16 seconds.

Table 33

Ottawa, Canada (45.4°N, 75.7°W)

August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 3.0 | | | | | 1.9 | 2.9 |
| 01 | 290 | 3.0 | | | | | 1.9 | 2.9 |
| 02 | 320 | 2.8 | | | | | 1.9 | 3.0 |
| 03 | 300 | 2.7 | | | | | 1.9 | 3.0 |
| 04 | 310 | 2.5 | | | | | 1.8 | 2.9 |
| 05 | 280 | 3.0 | | | | | 2.0 | 3.1 |
| 06 | 280 | 3.8 | 240 | 3.7 | 120 | 2.3 | --- | 3.1 |
| 07 | 340 | 4.6 | 220 | 3.8 | 110 | 2.7 | --- | 3.1 |
| 08 | 370 | 4.9 | 220 | 4.0 | 110 | 2.9 | --- | 3.0 |
| 09 | 400 | 5.0 | 210 | 4.2 | 110 | 3.2 | --- | 3.0 |
| 10 | 380 | 5.0 | 210 | 4.4 | 110 | 3.3 | --- | 2.8 |
| 11 | 390 | 5.2 | 200 | 4.4 | 110 | 3.4 | --- | 2.8 |
| 12 | 430 | 5.3 | 210 | 4.6 | 110 | 3.6 | --- | 2.7 |
| 13 | 400 | 5.6 | 210 | 4.6 | 110 | 3.5 | --- | 2.8 |
| 14 | 420 | 5.4 | 210 | 4.5 | 110 | 3.4 | --- | 2.8 |
| 15 | 380 | 5.6 | 220 | 4.5 | 110 | 3.3 | --- | 2.9 |
| 16 | 350 | 5.8 | 220 | 4.2 | 110 | 3.1 | --- | 3.0 |
| 17 | 330 | 6.1 | 230 | 3.9 | 110 | 2.8 | --- | 3.0 |
| 18 | 280 | 6.3 | 240 | 3.4 | 120 | 2.3 | 2.4 | 3.0 |
| 19 | 260 | 6.5 | --- | --- | --- | --- | 2.4 | 3.0 |
| 20 | 240 | 6.0 | --- | --- | --- | --- | 1.9 | 3.0 |
| 21 | 250 | 5.2 | --- | --- | --- | --- | 1.8 | 3.0 |
| 22 | 280 | 4.6 | --- | --- | --- | --- | 1.9 | 2.9 |
| 23 | 280 | 3.7 | --- | --- | --- | --- | 1.9 | 3.0 |

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 34

Wakkanai, Japan (45.4°N, 141.7°E)

August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 320 | 5.4 | | | | | 3.2 | 2.6 |
| 01 | 320 | 5.3 | | | | | 2.5 | 2.6 |
| 02 | 320 | 5.1 | | | | | 3.0 | 2.6 |
| 03 | 320 | 4.6 | | | | | 2.6 | 2.6 |
| 04 | 320 | 4.6 | | | | | 2.0 | 2.6 |
| 05 | 320 | 5.0 | --- | --- | --- | --- | 2.6 | 2.6 |
| 06 | 350 | 5.7 | 290 | 3.8 | 120 | 2.2 | 4.3 | 2.8 |
| 07 | 330 | 6.3 | 280 | 4.2 | 120 | 2.7 | 5.2 | 2.0 |
| 08 | 340 | 6.6 | 250 | 4.4 | 120 | 2.9 | 5.4 | 2.9 |
| 09 | 340 | 5.9 | 250 | 4.6 | 120 | --- | 5.4 | 2.9 |
| 10 | 410 | 5.8 | 250 | 4.7 | 120 | --- | 5.2 | 2.7 |
| 11 | 400 | 6.0 | 240 | 4.8 | --- | --- | 4.2 | 2.6 |
| 12 | 400 | 6.0 | 250 | 4.9 | 120 | --- | 5.0 | 2.8 |
| 13 | 400 | 6.5 | 260 | 4.8 | 130 | 3.5 | 4.2 | 2.7 |
| 14 | 380 | 6.4 | 260 | 4.6 | 120 | --- | 3.7 | 2.8 |
| 15 | 370 | 6.4 | 270 | 4.4 | 120 | 3.2 | 4.0 | 2.8 |
| 16 | 360 | 6.1 | 280 | 4.2 | 120 | 3.0 | 4.5 | 2.8 |
| 17 | 320 | 6.4 | 280 | 3.7 | 120 | 2.7 | 4.8 | 2.8 |
| 18 | 320 | 6.2 | --- | --- | --- | --- | 5.2 | 2.8 |
| 19 | 300 | 7.1 | --- | --- | --- | --- | 5.6 | 2.7 |
| 20 | 320 | 6.4 | --- | --- | --- | --- | 5.0 | 2.6 |
| 21 | 320 | 6.3 | --- | --- | --- | --- | 4.1 | 2.7 |
| 22 | 320 | 6.0 | --- | --- | --- | --- | 4.3 | 2.7 |
| 23 | 320 | 6.0 | --- | --- | --- | --- | 3.0 | 2.6 |

Time: 135.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 2 minutes.

Table 35

Akita, Japan (39.7°N, 140.1°E)

August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 5.6 | | | | | 4.2 | 2.9 |
| 01 | 290 | 5.2 | | | | | 3.4 | 2.8 |
| 02 | 290 | 5.0 | | | | | 3.4 | 2.9 |
| 03 | 280 | 4.9 | | | | | 3.2 | 2.9 |
| 04 | 300 | 4.6 | | | | | 2.8 | 2.8 |
| 05 | 270 | 4.9 | 250 | --- | --- | 1.6 | 3.0 | 3.0 |
| 06 | 280 | 6.0 | 240 | 3.5 | 110 | 2.3 | 3.6 | 3.1 |
| 07 | 290 | 6.4 | 230 | 4.0 | 110 | 2.6 | 4.8 | 3.1 |
| 08 | 290 | 6.3 | --- | 4.4 | 110 | 2.8 | 6.4 | 3.3 |
| 09 | 310 | 6.4 | 210 | 4.6 | 110 | 3.1 | 6.6 | 3.1 |
| 10 | (330) | (6.8) | 220 | 4.7 | 110 | 3.2 | 7.2 | (3.0) |
| 11 | 340 | 6.4 | 220 | 4.8 | 110 | --- | 6.5 | 2.9 |
| 12 | 330 | 6.9 | 230 | 4.9 | 110 | --- | 5.0 | 3.0 |
| 13 | 340 | 6.7 | 240 | 4.8 | 110 | --- | 5.2 | 2.9 |
| 14 | 330 | 6.8 | 240 | 4.6 | 110 | 3.2 | 4.6 | 3.0 |
| 15 | 310 | 6.9 | 230 | 4.6 | 110 | 3.2 | 4.6 | 3.0 |
| 16 | 300 | 6.6 | 250 | 4.2 | 110 | 2.9 | 4.0 | 3.2 |
| 17 | 290 | 6.8 | 240 | 4.0 | 110 | 2.6 | 4.4 | 3.1 |
| 18 | 270 | 6.9 | 240 | 3.4 | 120 | --- | 4.8 | 3.2 |
| 19 | 260 | 6.8 | --- | --- | --- | --- | 4.4 | 3.1 |
| 20 | 260 | 6.6 | --- | --- | --- | --- | 4.4 | 3.1 |
| 21 | 290 | 6.2 | --- | --- | --- | --- | 4.6 | 2.9 |
| 22 | 290 | 5.6 | --- | --- | --- | --- | 4.7 | 2.9 |
| 23 | 290 | 6.0 | --- | --- | --- | --- | 4.8 | 2.8 |

Time: 135.0°E.

Sweep: 1.0 Mc to 17.0 Mc in 15 minutes, manual operation.

Table 36

Tokyo, Japan (35.7°N, 139.5°E)

August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 290 | 5.9 | | | | | 3.8 | 2.8 |
| 01 | 280 | 5.5 | | | | | 3.1 | 2.8 |
| 02 | 270 | 5.4 | | | | | 2.8 | 2.9 |
| 03 | 270 | 5.0 | | | | | 3.0 | 2.9 |
| 04 | 280 | 4.4 | | | | | 2.5 | 2.8 |
| 05 | 270 | 4.9 | --- | --- | 120 | 1.6 | 2.7 | 3.0 |
| 06 | 290 | 6.3 | 240 | --- | 110 | 2.2 | 3.3 | 3.0 |
| 07 | 250 | 7.2 | 230 | 3.9 | 100 | 2.6 | 4.2 | 3.3 |
| 08 | 260 | 6.6 | 200 | --- | 100 | 2.9 | 5.5 | 3.3 |
| 09 | 280 | 6.7 | 220 | --- | 100 | 3.2 | 4.9 | 3.2 |
| 10 | 320 | 6.6 | 220 | 5.1 | 100 | 3.3 | 5.2 | 3.0 |
| 11 | 330 | 6.8 | 220 | 5.1 | 100 | 3.4 | 4.2 | 3.0 |
| 12 | 320 | 7.0 | --- | 5.2 | 100 | 3.6 | 5.2 | 3.0 |
| 13 | 320 | 7.2 | 230 | 5.0 | 100 | 3.6 | 4.1 | 3.0 |
| 14 | 320 | 7.5 | --- | 5.0 | 100 | 3.3 | 4.1 | 2.9 |
| 15 | 350 | 7.6 | 230 | 4.8 | 100 | 3.2 | 3.7 | 3.1 |
| 16 | 300 | 7.2 | 230 | --- | 100 | 2.9 | 3.9 | 3.1 |
| 17 | 280 | 7.0 | 240 | --- | 100 | 2.5 | 4.2 | 3.1 |
| 18 | 270 | 7.1 | 250 | --- | --- | --- | 3.8 | 3.1 |
| 19 | 250 | 6.8 | --- | --- | --- | --- | 3.7 | 3.1 |
| 20 | 260 | 6.6 | --- | --- | --- | --- | 4.0 | 3.0 |
| 21 | 260 | 6.6 | --- | --- | --- | --- | 4.4 | 2.9 |
| 22 | 280 | 5.8 | --- | --- | --- | --- | 4.1 | 2.8 |
| 23 | 280 | 5.6 | --- | --- | --- | --- | 4.2 | 2.8 |

Time: 135.0°E.

Sweep: 1.0 Mc to 17.2 Mc in 2 minutes.

Yamagawa, Japan (31.2°N, 130.6°E) **Table 37** August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 320 | 5.2 | | | | | 3.8 | 2.8 |
| 01 | 300 | 5.2 | | | | | 3.3 | 2.9 |
| 02 | 300 | 5.1 | | | | | 3.0 | |
| 03 | 280 | 4.9 | | | | | 2.8 | 2.9 |
| 04 | 290 | 4.4 | | | | | 2.4 | 2.9 |
| 05 | 290 | 4.6 | | | | | 2.4 | 2.9 |
| 06 | 270 | 5.5 | --- | --- | --- | --- | 2.6 | 3.1 |
| 07 | 250 | 7.2 | 240 | --- | 110 | 2.1 | 4.0 | 3.3 |
| 08 | 250 | 6.8 | --- | --- | 110 | --- | 4.2 | 3.4 |
| 09 | 300 | 7.0 | 220 | --- | 100 | --- | 4.6 | 2.9 |
| 10 | 300 | 7.2 | 230 | --- | --- | --- | 4.5 | 3.0 |
| 11 | 340 | 7.7 | 210 | --- | --- | --- | 4.7 | 2.9 |
| 12 | 340 | 8.3 | 260 | --- | --- | --- | 5.0 | 2.9 |
| 13 | 350 | 8.5 | 250 | 5.2 | --- | --- | 6.0 | 2.9 |
| 14 | 340 | 9.0 | 240 | --- | --- | --- | 6.0 | 2.9 |
| 15 | 320 | 9.1 | 220 | 4.9 | --- | --- | 5.4 | 2.9 |
| 16 | 300 | 9.1 | 220 | --- | --- | --- | 5.2 | 3.0 |
| 17 | 300 | 8.9 | 270 | --- | 100 | 2.6 | 4.2 | 3.2 |
| 18 | 290 | 8.3 | 240 | --- | 100 | 2.0 | 3.8 | 3.1 |
| 19 | 250 | 8.4 | --- | --- | --- | --- | 4.2 | 3.2 |
| 20 | 250 | 6.9 | --- | --- | --- | --- | 3.9 | 3.2 |
| 21 | 260 | 6.0 | --- | --- | --- | --- | 3.5 | 2.9 |
| 22 | 300 | 5.3 | --- | --- | --- | --- | 4.4 | 2.9 |
| 23 | 300 | 5.9 | --- | --- | --- | --- | 4.3 | 2.9 |

Time: 135.0°E.

Sweep: 1.0 Mc to 18.5 Mc in 15 minutes, manual operation.

Formosa, China (25.0°N, 121.0°E) **Table 38** August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 280 | 7.3 | | | | | 4.4 | 3.1 |
| 01 | 280 | 7.5 | | | | | 4.5 | 3.2 |
| 02 | 260 | 7.2 | | | | | 3.9 | 3.4 |
| 03 | 260 | 6.4 | | | | | 3.1 | 3.4 |
| 04 | 250 | 5.2 | | | | | 3.3 | 3.5 |
| 05 | 250 | 5.2 | | | | | 3.0 | 3.4 |
| 06 | 240 | 5.7 | 220 | 3.7 | 120 | 3.1 | 3.4 | 3.7 |
| 07 | 240 | 7.0 | 210 | 4.2 | 120 | 3.2 | 4.8 | 3.8 |
| 08 | 265 | 7.3 | 210 | 4.6 | 120 | 3.2 | 5.6 | 3.6 |
| 09 | 270 | 7.8 | 210 | 5.2 | 110 | 3.5 | 5.5 | 3.7 |
| 10 | 310 | 8.4 | 210 | 5.5 | 110 | 3.5 | 6.0 | 3.2 |
| 11 | 320 | 9.8 | 200 | 5.3 | 120 | 3.9 | 5.5 | 3.2 |
| 12 | 320 | 10.7 | 200 | 5.6 | 120 | 3.7 | 5.6 | 3.2 |
| 13 | 320 | 10.8 | 200 | 5.8 | 120 | 4.0 | 5.4 | 3.2 |
| 14 | 315 | 11.7 | 220 | 6.0 | 110 | 4.0 | 5.4 | 3.3 |
| 15 | 310 | 11.7 | 200 | 5.7 | 110 | 3.4 | 5.6 | 3.4 |
| 16 | 285 | 11.5 | 210 | 5.0 | 110 | 3.5 | 6.2 | 3.4 |
| 17 | 280 | 11.3 | 220 | 4.8 | 120 | 3.4 | 5.4 | 3.4 |
| 18 | 260 | 11.3 | 220 | 4.4 | 110 | 3.1 | 4.6 | 3.6 |
| 19 | 220 | 10.5 | 200 | 4.6 | 100 | --- | 3.2 | 3.6 |
| 20 | 240 | 8.5 | --- | --- | --- | --- | 3.6 | 3.6 |
| 21 | 260 | 7.5 | --- | --- | --- | --- | 3.4 | 3.4 |
| 22 | 290 | 6.8 | --- | --- | --- | --- | 3.2 | 3.1 |
| 23 | 285 | 7.2 | --- | --- | --- | --- | 4.5 | 3.2 |

Time: 120.0°E.

Sweep: 2.3 Mc to 14.5 Mc in 15 minutes, manual operation.

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) **Table 39** August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 250 | 2.8 | | | | | | 3.1 |
| 01 | 260 | 2.7 | | | | | | 3.0 |
| 02 | 270 | 2.6 | | | | | 1.4 | 2.9 |
| 03 | 260 | 2.7 | | | | | 2.0 | 3.0 |
| 04 | 250 | 2.6 | | | | | 2.1 | 3.0 |
| 05 | 260 | 2.6 | | | | | 2.0 | 3.0 |
| 06 | 260 | 2.6 | | | | | 1.9 | 3.0 |
| 07 | 230 | 5.8 | | | | | | 3.4 |
| 08 | 230 | 6.9 | 220 | 3.5 | 110 | 2.6 | | 3.4 |
| 09 | 260 | 7.6 | 220 | 4.3 | 110 | 3.1 | | 3.3 |
| 10 | 270 | 8.1 | 200 | 4.6 | 110 | 3.3 | | 3.2 |
| 11 | 270 | 8.4 | 210 | 4.7 | 110 | 3.5 | | 3.2 |
| 12 | 270 | 8.5 | 210 | 4.7 | 110 | 3.5 | | 3.2 |
| 13 | 270 | 8.1 | 200 | 4.6 | 110 | 3.5 | 3.7 | 3.2 |
| 14 | 280 | 8.1 | 200 | 4.5 | 110 | 3.4 | 3.8 | 3.1 |
| 15 | 270 | 8.5 | 220 | 4.3 | 110 | 3.2 | 3.7 | 3.2 |
| 16 | 250 | 8.1 | 220 | 3.7 | 110 | 2.8 | 3.4 | 3.2 |
| 17 | 230 | 7.7 | --- | --- | 110 | 2.3 | 2.7 | 3.2 |
| 18 | 220 | 6.9 | --- | --- | --- | --- | 2.4 | 3.3 |
| 19 | 220 | 5.0 | --- | --- | --- | --- | 2.0 | 3.3 |
| 20 | 230 | 3.6 | --- | --- | --- | --- | | 3.2 |
| 21 | 240 | 3.3 | --- | --- | --- | --- | | 3.2 |
| 22 | 250 | 3.1 | --- | --- | --- | --- | | 3.1 |
| 23 | 250 | 2.9 | --- | --- | --- | --- | | 3.2 |

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Watheroo, W. Australia (30.3°S, 115.9°E) **Table 40** August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 260 | 3.4 | | | | | 2.6 | 2.9 |
| 01 | 260 | 3.4 | | | | | 3.0 | 3.0 |
| 02 | 260 | 3.4 | | | | | 3.0 | 2.9 |
| 03 | 250 | 3.3 | | | | | 3.0 | 3.0 |
| 04 | 240 | 3.3 | | | | | 3.0 | 3.0 |
| 05 | 250 | 3.0 | | | | | 2.8 | 3.0 |
| 06 | 245 | 2.9 | | | | | 2.8 | 3.1 |
| 07 | 240 | 4.9 | | | | | | 3.5 |
| 08 | 240 | 6.2 | 230 | 3.3 | | 1.8 | 2.4 | 3.4 |
| 09 | 250 | 7.0 | 230 | 4.2 | | 2.8 | 3.4 | 3.4 |
| 10 | 265 | 7.6 | 230 | 4.4 | | 3.1 | 3.4 | 3.4 |
| 11 | 290 | 8.1 | 220 | 4.7 | | 3.3 | 3.3 | 3.3 |
| 12 | 270 | 8.1 | 230 | 4.6 | | 3.3 | 3.3 | 3.3 |
| 13 | 270 | 7.8 | 230 | 4.6 | | 3.2 | 3.2 | 3.2 |
| 14 | 270 | 7.8 | 230 | 4.5 | | 3.2 | 3.2 | 3.2 |
| 15 | 270 | 8.2 | 225 | 4.1 | | 3.0 | 3.2 | 3.2 |
| 16 | 250 | 7.7 | 220 | 3.6 | | 2.7 | 3.0 | 3.4 |
| 17 | 240 | 6.8 | | | | 2.0 | 2.7 | 3.4 |
| 18 | 230 | 6.0 | | | | | 2.8 | 3.3 |
| 19 | 230 | 4.6 | | | | | 3.0 | 3.2 |
| 20 | 240 | 4.0 | | | | | 2.5 | 3.1 |
| 21 | 250 | 3.6 | | | | | 2.4 | 2.9 |
| 22 | 250 | 3.5 | | | | | 2.5 | 2.9 |
| 23 | 260 | 3.5 | | | | | 2.6 | 2.9 |

Time: 120.0°E.

Sweep: 16.0 Mc to 0.5 Mc in 15 minutes, automatic operation.

Capetown, Union of S. Africa (34.2°S, 18.3°E) **Table 41** August 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|-------|-----|-----|-----|-----------|
| 00 | 270 | 2.6 | | | | | | 2.9 |
| 01 | 270 | 2.6 | | | | | | 2.9 |
| 02 | 280 | 2.7 | | | | | | 2.8 |
| 03 | 280 | 2.8 | | | | | | 2.9 |
| 04 | 260 | 3.0 | | | | | | 3.0 |
| 05 | 250 | 2.8 | | | | | | 3.1 |
| 06 | 260 | 2.6 | | | | | | 3.0 |
| 07 | 260 | 3.1 | | | | | | 3.0 |
| 08 | 230 | 5.6 | --- | --- | 120 | 2.0 | | 3.4 |
| 09 | 250 | 6.8 | 240 | (3.3) | 120 | 2.6 | | 3.4 |
| 10 | 260 | 7.2 | 230 | 4.1 | 120 | 3.0 | | 3.3 |
| 11 | 270 | 7.7 | 220 | 4.5 | 110 | 3.2 | | 3.2 |
| 12 | 280 | 7.9 | 210 | 4.6 | 110 | 3.3 | | 3.1 |
| 13 | 280 | 8.1 | 220 | 4.6 | 110 | 3.4 | | 3.0 |
| 14 | 280 | 8.7 | 220 | 4.6 | 110 | 3.3 | | 3.0 |
| 15 | 270 | 9.2 | 220 | 4.4 | 110 | 3.1 | 4.0 | 3.1 |
| 16 | 260 | 8.6 | 230 | 4.0 | 110 | 2.9 | 3.6 | 3.1 |
| 17 | 240 | 7.7 | 230 | (3.2) | 120 | 2.5 | 2.9 | 3.2 |
| 18 | 230 | 7.4 | --- | --- | 110 | 1.8 | 2.3 | 3.3 |
| 19 | 220 | 5.6 | --- | --- | --- | --- | 2.1 | 3.3 |
| 20 | 230 | 3.7 | --- | --- | --- | --- | 1.7 | 3.2 |
| 21 | 240 | 3.1 | --- | --- | --- | --- | | 3.2 |
| 22 | 240 | 3.0 | --- | --- | --- | --- | | 3.2 |
| 23 | 250 | 2.6 | --- | --- | --- | --- | | 3.1 |

Time: 30.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Kiruna, Sweden (67.8°N, 20.6°E) **Table 42** July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | (305) | (4.4) | | | | | 4.0 | |
| 01 | (310) | (5.0) | | | | | 3.8 | |
| 02 | (340) | 4.2 | 280 | --- | --- | --- | 3.0 | |
| 03 | 370 | 4.7 | 240 | 3.2 | 100 | 2.0 | | |
| 04 | 385 | 4.7 | 240 | 3.4 | 100 | 2.0 | | |
| 05 | 380 | 4.8 | 220 | 3.5 | 100 | 2.3 | | |
| 06 | 375 | 5.1 | 220 | 3.8 | 100 | 2.5 | | |
| 07 | 385 | 5.2 | 210 | 4.0 | 100 | 2.7 | 3.0 | |
| 08 | 330 | 5.3 | 200 | 4.1 | 100 | 2.8 | 2.9 | |
| 09 | 370 | 5.7 | 200 | 4.1 | 100 | 2.8 | | |
| 10 | 365 | 5.8 | 200 | 4.2 | 100 | 2.9 | 3.2 | |
| 11 | 365 | 5.8 | 200 | 4.3 | 100 | 2.9 | | |
| 12 | 365 | 5.8 | 200 | 4.2 | 100 | 3.0 | | |
| 13 | 365 | 5.7 | 200 | 4.2 | 100 | 2.9 | | |
| 14 | 350 | 5.6 | 200 | 4.2 | 100 | 2.9 | 3.2 | |
| 15 | 340 | 5.4 | 200 | 4.2 | 100 | 2.8 | | |
| 16 | 355 | 5.2 | 210 | 4.1 | 100 | 2.8 | | |
| 17 | 330 | 5.2 | 220 | 4.0 | 100 | 2.5 | 3.0 | |
| 18 | (330) | 5.2 | 230 | 3.8 | 160 | 2.3 | 3.9 | |
| 19 | --- | 5.1 | 245 | --- | 100 | 2.1 | 3.7 | |
| 20 | (350) | 5.0 | 250 | --- | 105 | 2.0 | 3.9 | |
| 21 | (300) | 5.1 | 250 | --- | 100 | 1.9 | 4.0 | |
| 22 | (330) | 5.0 | 260 | --- | --- | --- | 4.0 | |
| 23 | (295) | (5.0) | | | | | 4.2 | |

Time: 15.0°E.

Sweep: 0.8 Mc to 16.0 Mc in 30 seconds.

Table 43

Churchill, Canada (58.8°N, 94.2°W)

July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 270 | 4.6 | --- | --- | --- | --- | 7.3 | 3.0 |
| 01 | 295 | 4.2 | --- | --- | --- | --- | 5.9 | 3.0 |
| 02 | 300 | 4.4 | --- | --- | --- | --- | 6.0 | 2.8 |
| 03 | 290 | 4.0 | --- | --- | 110 | 1.8 | 5.0 | 3.0 |
| 04 | 290 | 4.2 | --- | --- | 110 | 2.0 | 3.0 | 3.1 |
| 05 | 280 | 4.0 | --- | --- | 100 | 2.4 | 1.5 | 3.0 |
| 06 | 360 | 4.5 | 260 | 3.9 | 100 | 2.9 | --- | 3.0 |
| 07 | 410 | 4.6 | 280 | 4.0 | 110 | 3.4 | --- | (2.7) |
| 08 | 460 | 5.0 | 250 | 4.3 | 100 | 3.4 | --- | 2.6 |
| 09 | 460 | 5.2 | 210 | 4.2 | 100 | 3.2 | --- | 2.5 |
| 10 | 420 | 5.5 | 220 | 4.5 | 100 | 3.5 | --- | 2.8 |
| 11 | 410 | 5.7 | 210 | 4.5 | 100 | 3.2 | --- | 2.7 |
| 12 | 440 | 5.4 | 220 | 4.5 | 100 | 3.0 | --- | 2.6 |
| 13 | 420 | 5.8 | 220 | 4.5 | 100 | 3.2 | --- | 2.7 |
| 14 | 400 | 5.6 | 210 | 4.5 | 100 | 3.2 | --- | 2.7 |
| 15 | 390 | 5.9 | 220 | 4.4 | 100 | 3.0 | --- | 2.7 |
| 16 | 380 | 5.7 | 220 | 4.3 | 100 | 3.0 | --- | 2.8 |
| 17 | 360 | 5.6 | 240 | 4.2 | 100 | 3.0 | --- | 2.7 |
| 18 | 330 | 5.6 | 260 | 4.0 | 110 | 3.0 | --- | 2.8 |
| 19 | 330 | 5.0 | 280 | 3.6 | 110 | 3.0 | --- | 2.9 |
| 20 | 320 | 5.0 | --- | --- | 110 | 2.9 | 6.5 | 3.0 |
| 21 | 300 | 4.9 | --- | --- | 110 | 2.9 | 6.4 | 3.0 |
| 22 | 280 | 4.5 | --- | --- | 120 | 2.4 | 8.0 | 3.0 |
| 23 | 270 | 5.0 | --- | --- | --- | --- | 8.2 | (3.0) |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 45

Winnipeg, Canada (49.9°N, 97.4°W)

July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|------|------|------|-----|-------|-----|-----------|
| 00 | 310 | 3.4 | --- | --- | --- | --- | 3.0 | (2.8) |
| 01 | 300 | 3.6 | --- | --- | --- | --- | 3.9 | 2.6 |
| 02 | 310 | 3.4 | --- | --- | --- | --- | 4.0 | 2.7 |
| 03 | 300 | 3.4 | --- | --- | --- | --- | 3.4 | (2.8) |
| 04 | 300 | 3.2 | --- | --- | --- | --- | 3.0 | (2.8) |
| 05 | 260 | 3.7 | 240 | --- | 110 | --- | 3.2 | 2.7 |
| 06 | (370) | 4.1 | 230 | 3.5 | 120 | 2.3 | --- | (2.8) |
| 07 | 450 | 4.7 | 220 | 3.9 | 110 | 2.8 | --- | 2.8 |
| 08 | 460 | 5.0 | 210 | 4.0 | 110 | 3.0 | --- | 2.6 |
| 09 | 440 | 5.2 | 200 | 4.2 | 110 | 3.3 | --- | 2.6 |
| 10 | 390 | 5.7 | 210 | 4.4 | 110 | (3.4) | --- | 2.8 |
| 11 | 400 | 5.7 | 200 | 4.5 | 110 | (3.6) | 3.6 | 2.6 |
| 12 | 440 | 5.5 | 200 | 4.6 | 100 | (3.4) | 3.4 | 2.6 |
| 13 | 430 | 5.5 | 220 | 4.5 | 110 | (3.6) | 3.4 | 2.5 |
| 14 | 430 | 5.6 | 220 | 4.8 | 110 | 3.4 | 2.6 | 2.5 |
| 15 | 430 | 5.7 | 220 | 4.4 | 110 | (3.4) | 3.4 | 2.8 |
| 16 | 390 | 5.8 | 230 | 4.4 | 110 | (3.2) | 2.6 | 2.6 |
| 17 | 380 | 6.9 | 220 | 4.2 | 110 | 3.0 | --- | 2.7 |
| 18 | 320 | 5.9 | 230 | 4.0 | 110 | 2.8 | 2.3 | 2.8 |
| 19 | 300 | 6.0 | 240 | 3.8 | 120 | 2.6 | 2.9 | 2.8 |
| 20 | 270 | 6.0 | --- | --- | --- | --- | 2.0 | 2.8 |
| 21 | 260 | 5.5 | --- | --- | --- | --- | 2.0 | 2.8 |
| 22 | 260 | 4.8 | --- | --- | --- | --- | 1.7 | 2.8 |
| 23 | 290 | 3.7 | --- | --- | --- | --- | 3.2 | 2.8 |

Time: 90.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 47

Brisbane, Australia (27.5°S, 153.0°E)

July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 250 | 4.0 | --- | --- | --- | --- | --- | 3.0 |
| 01 | 260 | 4.0 | --- | --- | --- | --- | --- | 3.0 |
| 02 | 260 | 4.0 | --- | --- | --- | --- | 2.4 | 3.0 |
| 03 | 255 | 4.0 | --- | --- | --- | --- | 3.2 | 3.1 |
| 04 | 240 | 3.8 | --- | --- | --- | --- | 1.9 | 3.2 |
| 05 | 250 | 3.5 | --- | --- | --- | --- | 2.6 | 3.1 |
| 06 | 240 | 3.4 | --- | --- | --- | --- | --- | 3.2 |
| 07 | 220 | 5.4 | --- | --- | 150 | 2.0 | --- | 3.4 |
| 08 | 230 | 6.8 | 230 | 3.7 | 110 | 2.6 | --- | 3.4 |
| 09 | 250 | 7.4 | 230 | 4.4 | 110 | 3.0 | --- | 3.4 |
| 10 | 250 | 7.6 | 220 | 4.4 | 100 | 3.2 | --- | 3.4 |
| 11 | 250 | 7.1 | 210 | 4.6 | 100 | 3.3 | --- | 3.4 |
| 12 | 265 | 7.7 | 210 | 4.6 | 100 | 3.3 | --- | 3.3 |
| 13 | 270 | 7.5 | 210 | 4.5 | 100 | 3.3 | --- | 3.3 |
| 14 | 260 | 7.6 | 210 | 4.4 | 100 | 3.2 | 3.9 | 3.3 |
| 15 | 250 | 7.5 | 220 | 4.0 | 100 | 3.0 | 4.0 | 3.3 |
| 16 | 230 | 6.9 | 220 | 3.4 | 120 | 2.6 | 3.5 | 3.3 |
| 17 | 220 | 6.8 | --- | --- | 160 | 1.8 | 3.0 | 3.3 |
| 18 | 220 | 5.6 | --- | --- | --- | --- | 3.6 | 3.3 |
| 19 | 220 | 4.5 | --- | --- | --- | --- | 2.6 | 3.2 |
| 20 | 245 | 4.0 | --- | --- | --- | --- | --- | 3.1 |
| 21 | 250 | 4.0 | --- | --- | --- | --- | --- | 3.0 |
| 22 | 250 | 3.9 | --- | --- | --- | --- | --- | 3.0 |
| 23 | 260 | 4.0 | --- | --- | --- | --- | --- | 3.1 |

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 44

Prince Rupert, Canada (54.3°N, 130.3°W)

July 1961

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 270 | 3.8 | --- | --- | --- | --- | --- | 3.0 |
| 01 | 300 | 3.3 | --- | --- | --- | --- | --- | 1.4 |
| 02 | 300 | 3.3 | --- | --- | --- | --- | --- | 2.0 |
| 03 | 300 | 3.1 | --- | --- | --- | --- | --- | 1.6 |
| 04 | 320 | 3.2 | --- | --- | --- | --- | --- | 1.6 |
| 05 | 410 | 4.0 | 270 | 3.0 | 120 | 1.8 | --- | 2.7 |
| 06 | 420 | 4.2 | 240 | 3.2 | 110 | 2.1 | --- | 2.8 |
| 07 | 420 | 4.7 | 220 | 3.8 | 100 | 2.6 | --- | 2.6 |
| 08 | 450 | 4.9 | 210 | 4.0 | 100 | 3.0 | --- | 2.7 |
| 09 | 460 | 6.0 | 200 | 4.1 | 100 | 3.1 | 3.3 | 2.6 |
| 10 | 460 | 5.0 | 200 | 4.3 | 100 | 3.2 | --- | 2.7 |
| 11 | 450 | 6.0 | 210 | 4.4 | 100 | 3.3 | 4.2 | 2.6 |
| 12 | 440 | 5.3 | 210 | 4.6 | 100 | 3.4 | 3.8 | 2.8 |
| 13 | 440 | 5.3 | 210 | 4.6 | 100 | 3.4 | 3.8 | 2.7 |
| 14 | 440 | 5.4 | 210 | 4.6 | 100 | 3.4 | 3.9 | 2.7 |
| 15 | 420 | 6.3 | 210 | 4.5 | 100 | 3.3 | --- | 2.7 |
| 16 | 420 | 6.2 | 210 | 4.4 | 100 | 3.1 | 3.6 | 2.8 |
| 17 | 390 | 5.5 | 210 | 4.3 | 100 | 3.0 | --- | 2.9 |
| 18 | 340 | 5.3 | 220 | 4.0 | 100 | 2.8 | --- | 3.0 |
| 19 | 300 | 5.4 | 240 | 3.7 | 110 | 2.4 | 3.0 | 3.0 |
| 20 | 270 | 5.5 | 260 | 2.8 | 120 | 2.0 | 3.9 | 3.0 |
| 21 | 260 | 5.5 | --- | --- | --- | --- | 2.8 | 3.1 |
| 22 | 260 | 5.0 | --- | --- | --- | --- | 3.2 | 3.0 |
| 23 | 270 | 3.9 | --- | --- | --- | --- | 2.8 | 2.9 |

Time: 120.0°W.

Sweep: 0.6 Mc to 20.0 Mc in 15 seconds.

Table 46

Ottawa, Canada (45.4°N, 75.7°W)

July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 290 | 3.8 | --- | --- | --- | --- | --- | 2.0 |
| 01 | 290 | 3.6 | --- | --- | --- | --- | --- | 2.8 |
| 02 | 280 | 3.2 | --- | --- | --- | --- | --- | 3.4 |
| 03 | 290 | 2.9 | --- | --- | --- | --- | --- | 3.4 |
| 04 | 290 | 3.0 | --- | --- | --- | --- | --- | 2.0 |
| 05 | 260 | 3.4 | 230 | 2.9 | 120 | 1.9 | --- | 2.8 |
| 06 | 280 | 4.0 | 220 | 3.6 | 110 | 2.6 | --- | 2.9 |
| 07 | 340 | 4.6 | 210 | 3.9 | 110 | 2.9 | --- | 2.8 |
| 08 | 400 | 4.6 | 200 | 4.2 | 110 | 3.0 | --- | 2.8 |
| 09 | 400 | 5.2 | 200 | 4.3 | 100 | 3.2 | --- | 2.7 |
| 10 | 420 | 5.2 | 200 | 4.4 | 100 | 3.4 | --- | 2.7 |
| 11 | 420 | 5.3 | 200 | 4.6 | 100 | 3.6 | --- | 2.8 |
| 12 | 430 | 5.3 | 200 | 4.6 | 100 | 3.6 | --- | 2.8 |
| 13 | 420 | 5.2 | 200 | 4.4 | 110 | 3.6 | --- | 2.8 |
| 14 | 420 | 5.4 | 210 | 4.5 | 100 | 3.5 | --- | 2.8 |
| 15 | 390 | 5.8 | 210 | 4.4 | 110 | 3.4 | --- | 2.7 |
| 16 | 370 | 6.0 | 220 | 4.3 | 110 | 3.2 | --- | 2.8 |
| 17 | 340 | 6.0 | 220 | 4.0 | 110 | 2.9 | --- | 2.8 |
| 18 | 310 | 6.0 | 230 | 3.8 | 120 | 2.7 | --- | 2.8 |
| 19 | 260 | 6.1 | 250 | --- | 120 | 2.0 | 2.5 | 2.8 |
| 20 | 250 | 6.3 | --- | --- | --- | --- | --- | 2.3 |
| 21 | 250 | 5.9 | --- | --- | --- | --- | --- | 1.9 |
| 22 | 260 | 5.0 | --- | --- | --- | --- | --- | 2.4 |
| 23 | 270 | 4.1 | --- | --- | --- | --- | --- | 1.8 |

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 48

Hobart, Tasmania (42.8°S, 147.4°E)

July 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 270 | 2.6 | --- | --- | --- | --- | --- | 3.1 |
| 01 | 280 | 2.6 | --- | --- | --- | --- | --- | 3.3 |
| 02 | 300 | 2.3 | --- | --- | --- | --- | --- | 3.5 |
| 03 | 280 | 2.5 | --- | --- | --- | --- | --- | 3.0 |
| 04 | 270 | 2.4 | --- | --- | --- | --- | --- | 3.5 |
| 05 | 250 | 2.5 | --- | --- | --- | --- | --- | 3.0 |
| 06 | 250 | 2.2 | --- | --- | --- | --- | --- | 1.5 |
| 07 | 260 | 2.4 | --- | --- | --- | --- | --- | 3.0 |
| 08 | 230 | 4.8 | --- | --- | 120 | 1.9 | 2.3 | 3.3 |
| 09 | 230 | 5.8 | --- | --- | 110 | 2.5 | --- | 3.3 |
| 10 | 230 | 6.5 | --- | --- | 100 | 3.0 | --- | 3.2 |
| 11 | 250 | 7.0 | 215 | 4.3 | 100 | 3.0 | --- | 3.2 |
| 12 | 250 | 7.2 | 205 | 4.4 | 100 | 3.1 | --- | 3.2 |
| 13 | 250 | 7.2 | 210 | 4.3 | 100 | 3.0 | --- | 3.1 |
| 14 | 250 | 7.5 | 220 | 4.2 | 100 | 3.0 | --- | 3.2 |
| 15 | 250 | 7.3 | 210 | 3.7 | 100 | 2.6 | --- | 3.2 |
| 16 | 230 | 7.2 | --- | --- | 110 | 2.1 | --- | 3.2 |
| 17 | 220 | 6.5 | --- | --- | --- | --- | 3.0 | 3.1 |
| 18 | 230 | 5.5 | --- | --- | --- | --- | 2.0 | 3.0 |
| 19 | 230 | 4.6 | --- | --- | --- | --- | --- | 3.0 |
| 20 | 245 | 3.8 | --- | --- | --- | --- | --- | 3.0 |
| 21 | 250 | 3.3 | --- | --- | --- | --- | --- | 3.0 |
| 22 | 260 | 2.9 | --- | --- | --- | --- | --- | 2.9 |
| 23 | 290 | 2.7 | --- | --- | --- | --- | --- | 2.9 |

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 49
Christchurch, New Zealand (43.6°S, 172.7°E)

| July 1951 | | | | | | | |
|-----------|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 300 | 2.9 | | | | | 3.0 |
| 01 | 290 | 2.8 | | | | | 3.8 |
| 02 | 290 | 2.7 | | | | | 3.4 |
| 03 | 280 | 2.7 | | | | | 3.2 |
| 04 | 270 | 2.5 | | | | | 3.3 |
| 05 | 250 | 2.2 | | | | | 3.4 |
| 06 | 250 | 1.8 | | | | | 3.7 |
| 07 | 260 | 2.5 | | | | | 3.0 |
| 08 | 240 | 4.8 | | | | 1.6 | 2.9 |
| 09 | 240 | 5.7 | 240 | 3.3 | | 2.3 | 3.5 |
| 10 | 250 | 6.3 | 240 | 3.8 | | 2.7 | 3.4 |
| 11 | 250 | 6.8 | 230 | 4.0 | | 2.8 | 3.9 |
| 12 | 270 | 7.2 | 230 | 4.2 | | 2.9 | 4.2 |
| 13 | 260 | 7.5 | 240 | 4.2 | | 2.9 | 5.7 |
| 14 | 260 | 7.4 | 230 | 3.9 | | 2.7 | 4.5 |
| 15 | 250 | 6.8 | 230 | 3.5 | | 2.4 | 4.0 |
| 16 | 240 | 6.5 | 250 | 3.0 | | 1.7 | 4.4 |
| 17 | 240 | 5.8 | | | | 1.3 | 4.0 |
| 18 | 250 | 5.0 | | | | | 3.5 |
| 19 | 250 | 4.2 | | | | | 2.9 |
| 20 | 250 | 3.7 | | | | | 2.8 |
| 21 | 260 | 3.4 | | | | | 2.8 |
| 22 | 280 | 3.1 | | | | | 2.8 |
| 23 | 290 | 3.0 | | | | | 2.8 |

Time: 172.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 50
Kiruna, Sweden (67.8°N, 20.5°E)

| June 1951 | | | | | | | |
|-----------|-------|-------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | (315) | --- | --- | --- | --- | --- | 4.1 |
| 01 | (330) | (4.4) | --- | --- | --- | --- | 3.7 |
| 02 | 340 | 4.6 | 250 | 2.7 | --- | --- | 3.4 |
| 03 | 330 | 4.8 | 250 | 3.1 | 100 | 1.9 | 2.0 |
| 04 | 365 | 4.8 | 240 | 3.3 | 100 | 2.1 | |
| 05 | 350 | 5.2 | 230 | 3.5 | 100 | 2.2 | |
| 06 | 370 | 5.3 | 225 | 3.8 | 100 | 2.5 | |
| 07 | 370 | 5.4 | 220 | 4.0 | 100 | 2.6 | |
| 08 | 355 | 5.9 | 210 | 4.0 | 100 | 2.8 | |
| 09 | 350 | 5.8 | 210 | 4.1 | 100 | 2.9 | |
| 10 | 350 | 5.7 | 210 | 4.1 | 100 | 3.0 | |
| 11 | 360 | 5.4 | 200 | 4.2 | 100 | 3.0 | 3.1 |
| 12 | 380 | 5.4 | 200 | 4.3 | 100 | 3.0 | 3.2 |
| 13 | 360 | 5.5 | 200 | 4.2 | 100 | 2.9 | |
| 14 | 350 | 5.6 | 205 | 4.3 | 100 | 2.9 | |
| 15 | 350 | 5.4 | 205 | 4.1 | 100 | 2.7 | |
| 16 | 340 | 5.4 | 220 | 4.0 | 100 | 2.5 | |
| 17 | 330 | 5.2 | 230 | 4.0 | 100 | 2.4 | 3.1 |
| 18 | 300 | 5.3 | 235 | 3.9 | 105 | 2.3 | 3.2 |
| 19 | (305) | 5.1 | 245 | 3.6 | 110 | 2.1 | 3.2 |
| 20 | (340) | 5.0 | 255 | --- | 110 | 2.1 | 3.4 |
| 21 | (330) | 5.0 | 260 | --- | 110 | 2.0 | 3.7 |
| 22 | (330) | (4.7) | 275 | --- | 105 | 1.9 | 3.8 |
| 23 | (320) | --- | --- | --- | --- | --- | 3.7 |

Time: 15.0°E.

Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 51
Fribourg, Germany (48.1°N, 7.8°E)

| June 1951 | | | | | | | |
|-----------|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 290 | 6.0 | | | | | 2.8 |
| 01 | 290 | 5.5 | | | | | 2.9 |
| 02 | 295 | 5.3 | | | | | 3.0 |
| 03 | 290 | 5.3 | | | | | 3.1 |
| 04 | 290 | 5.0 | | | | | 2.7 |
| 05 | 302 | 5.6 | 265 | 3.3 | 121 | 2.0 | 3.3 |
| 06 | 310 | 6.0 | 250 | 4.1 | 117 | 2.7 | 3.0 |
| 07 | 340 | 6.5 | 252 | 4.4 | 113 | 3.0 | 3.0 |
| 08 | 340 | 7.0 | 260 | 4.6 | 111 | 3.2 | 4.1 |
| 09 | 350 | 6.9 | 235 | 4.8 | 111 | 3.4 | 4.7 |
| 10 | 335 | 7.2 | 245 | 5.0 | 109 | 3.5 | 3.8 |
| 11 | 360 | 7.0 | 230 | 4.9 | 111 | 3.6 | 4.1 |
| 12 | 350 | 6.6 | 220 | 5.0 | 110 | 3.6 | 4.3 |
| 13 | 375 | 6.8 | 225 | 4.9 | 111 | 3.5 | 4.3 |
| 14 | 360 | 6.8 | 240 | 4.9 | 111 | 3.5 | 3.4 |
| 15 | 370 | 6.8 | 235 | 4.9 | 111 | 3.5 | 3.4 |
| 16 | 340 | 7.0 | 245 | 4.6 | 112 | 3.3 | 2.9 |
| 17 | 318 | 6.8 | 270 | 4.4 | 111 | 3.0 | 2.9 |
| 18 | 305 | 7.0 | 265 | 3.8 | 117 | 2.6 | 2.9 |
| 19 | 285 | 7.0 | 275 | --- | 125 | 2.0 | 4.0 |
| 20 | 270 | 7.3 | | | | | 4.4 (3.0) |
| 21 | 280 | 7.1 | | | | | 3.4 |
| 22 | 265 | 6.9 | | | | | 3.0 |
| 23 | 280 | 6.4 | | | | | 2.8 |

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 52
Brisbane, Australia (27.5°S, 153.0°E)

| June 1951 | | | | | | | |
|-----------|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 260 | 4.0 | | | | | 3.0 |
| 01 | 270 | 4.0 | | | | | 2.9 |
| 02 | 250 | 4.3 | | | | | 3.1 |
| 03 | 250 | 4.3 | | | | | 3.1 |
| 04 | 240 | 4.2 | | | | | 3.2 |
| 05 | 230 | 3.6 | | | | | 3.2 |
| 06 | 250 | 3.5 | | | | | 3.1 |
| 07 | 220 | 5.5 | | | 150 | 2.1 | 3.4 |
| 08 | 230 | 7.0 | --- | 3.4 | 110 | 2.6 | 3.4 |
| 09 | 250 | 7.6 | 230 | 4.4 | 105 | 3.0 | 3.4 |
| 10 | 250 | 8.1 | 220 | 4.5 | 100 | 3.2 | 3.4 |
| 11 | 250 | 7.6 | 215 | 4.6 | 100 | 3.4 | 3.3 |
| 12 | 250 | 8.1 | 210 | 4.6 | 100 | 3.5 | 3.3 |
| 13 | 260 | 8.0 | 210 | 4.7 | 100 | 3.4 | 4.0 |
| 14 | 250 | 8.0 | 210 | 4.4 | 100 | 3.2 | 3.4 |
| 15 | 250 | 8.1 | 225 | 4.0 | 100 | 2.9 | 4.2 |
| 16 | 230 | 7.5 | --- | 3.2 | 120 | 2.5 | 3.6 |
| 17 | 220 | 6.8 | | | --- | 1.6 | 4.0 |
| 18 | 210 | 5.4 | | | --- | | 3.2 |
| 19 | 220 | 4.4 | | | | | 2.2 |
| 20 | 240 | 4.0 | | | | | 3.1 |
| 21 | 245 | 4.0 | | | | | 3.1 |
| 22 | 240 | 3.8 | | | | | 3.1 |
| 23 | 250 | 4.0 | | | | | 3.0 |

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 53
Canberra, Australia (35.3°S, 149.0°E)

| June 1951 | | | | | | | |
|-----------|-------|-------|------|-------|-----|-------|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 255 | 3.4 | | | | | 1.6 |
| 01 | 260 | 3.5 | | | | | 2.4 |
| 02 | 260 | 3.7 | | | | | 3.0 |
| 03 | 255 | 4.0 | | | | | 2.5 |
| 04 | 240 | 4.0 | | | | | 2.4 |
| 05 | 210 | 3.7 | | | | | 2.5 |
| 06 | 220 | (3.0) | | | | | 2.3 |
| 07 | 230 | 4.0 | | | | | 2.2 |
| 08 | 210 | 6.1 | | | --- | (1.6) | 3.3 |
| 09 | 220 | 7.0 | 215 | (3.6) | 110 | 2.7 | 3.5 |
| 10 | 230 | 7.3 | 210 | (4.2) | 100 | 3.0 | 3.5 |
| 11 | 230 | 7.7 | 220 | (4.4) | 100 | 3.1 | 3.5 |
| 12 | 240 | 7.3 | 210 | (4.5) | 100 | 3.2 | 3.6 |
| 13 | 240 | 7.6 | 210 | (4.3) | 100 | 3.2 | 3.4 |
| 14 | 240 | 7.7 | 215 | (4.2) | 100 | 3.0 | 3.8 |
| 15 | 230 | 7.8 | 220 | --- | 105 | 2.7 | 3.5 |
| 16 | 220 | 7.4 | --- | --- | 110 | 2.2 | 2.4 |
| 17 | 210 | 7.0 | --- | --- | --- | <1.7 | 2.4 |
| 18 | 210 | 5.2 | | | | | 2.4 |
| 19 | 220 | 4.5 | | | | | 2.3 |
| 20 | 220 | 3.8 | | | | | 3.2 |
| 21 | (240) | 3.6 | | | | | 2.4 |
| 22 | (250) | 3.5 | | | | | 3.0 |
| 23 | (260) | 3.2 | | | | | 2.9 |

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 54
Hobart, Australia (42.8°S, 147.4°E)

| June 1951 | | | | | | | |
|-----------|------|------|------|------|-----|-----|---------------|
| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs (M3000)F2 |
| 00 | 240 | 2.5 | | | | | 2.8 |
| 01 | 295 | 2.5 | | | | | 1.7 |
| 02 | 295 | 2.5 | | | | | 2.2 |
| 03 | 290 | 2.5 | | | | | 2.9 |
| 04 | 260 | 2.5 | | | | | 3.0 |
| 05 | 250 | 2.6 | | | | | 3.0 |
| 06 | 260 | 2.2 | | | | | 3.0 |
| 07 | 260 | 2.3 | | | | | 2.9 |
| 08 | 240 | 5.0 | | | 120 | 1.9 | 2.1 |
| 09 | 230 | 6.5 | | | 110 | 2.5 | 3.3 |
| 10 | 240 | 7.0 | --- | --- | 110 | 2.9 | 3.2 |
| 11 | 235 | 7.4 | 220 | 4.0 | 100 | 3.0 | 3.2 |
| 12 | 250 | 7.5 | 210 | 4.2 | 100 | 3.1 | 3.2 |
| 13 | 250 | 7.7 | 210 | 4.1 | 100 | 3.0 | 3.2 |
| 14 | 240 | 8.0 | 230 | 4.0 | 100 | 3.0 | 3.1 |
| 15 | 240 | 7.6 | --- | --- | 110 | 2.5 | 3.2 |
| 16 | 230 | 7.8 | | | 110 | 2.0 | 3.2 |
| 17 | 220 | 7.0 | | | --- | E | 2.0 |
| 18 | 220 | 5.7 | | | | | 3.0 |
| 19 | 230 | 4.5 | | | | | 3.1 |
| 20 | 240 | 3.5 | | | | | 3.0 |
| 21 | 250 | 2.9 | | | | | 3.0 |
| 22 | 265 | 2.5 | | | | | 2.9 |
| 23 | 290 | 2.5 | | | | | 2.9 |

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 55

Kiruna, Sweden (67.8°N, 20.5°E) May 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|-------|------|------|-----|-----|-----|-----------|
| 00 | 300 | (5.0) | | | | | 4.0 | |
| 01 | 315 | 4.5 | | | | | 3.0 | |
| 02 | 305 | 4.5 | 280 | --- | --- | --- | 2.1 | |
| 03 | 325 | 4.8 | 270 | 3.0 | 105 | 1.7 | 2.0 | |
| 04 | 345 | 4.6 | 250 | 3.3 | 105 | 2.0 | | |
| 05 | 380 | 4.7 | 240 | 3.6 | 100 | 2.1 | | |
| 06 | 390 | 5.0 | 235 | 3.8 | 100 | 2.4 | | |
| 07 | 380 | 5.2 | 230 | 4.0 | 100 | 2.8 | | |
| 08 | 360 | 5.6 | 225 | 4.1 | 100 | 2.9 | | |
| 09 | 375 | 6.0 | 220 | 4.3 | 100 | 2.9 | | |
| 10 | 355 | 6.0 | 220 | 4.3 | 100 | 3.0 | | |
| 11 | 355 | 6.0 | 215 | 4.3 | 100 | 3.0 | | |
| 12 | 350 | 6.0 | 215 | 4.3 | 100 | 3.1 | | |
| 13 | 340 | 5.8 | 210 | 4.3 | 100 | 3.0 | | |
| 14 | 350 | 5.6 | 220 | 4.3 | 100 | 3.0 | | |
| 15 | 350 | 5.5 | 220 | 4.2 | 100 | 2.9 | | |
| 16 | 340 | 5.6 | 230 | 4.1 | 100 | 2.7 | | |
| 17 | 315 | 5.7 | 235 | 3.9 | 100 | 2.6 | 2.8 | |
| 18 | 310 | 5.4 | 245 | 3.7 | 100 | 2.3 | 3.2 | |
| 19 | 325 | 5.4 | 250 | --- | 110 | 2.1 | 4.0 | |
| 20 | 320 | 5.4 | 250 | --- | 110 | 2.0 | 3.1 | |
| 21 | 310 | 5.1 | 270 | --- | 110 | 1.9 | 2.6 | |
| 22 | 300 | 4.4 | --- | --- | --- | --- | 3.1 | |
| 23 | 305 | 4.6 | --- | --- | --- | --- | 4.2 | |

Time: 15.0°E.

Sweep: 0.8 Mc to 15.0 Mc in 30 seconds.

Table 56

Fribourg, Germany (48.1°N, 7.8°E) May 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 288 | 5.7 | | | | | | 2.6 |
| 01 | 300 | 5.3 | | | | | 1.9 | 2.6 |
| 02 | 300 | 5.1 | | | | | 2.2 | 2.7 |
| 03 | 282 | 4.8 | | | | | | 2.7 |
| 04 | 290 | 4.6 | --- | --- | | | | 2.1 |
| 05 | 270 | 4.6 | 260 | 3.0 | 126 | 1.8 | | 2.8 |
| 06 | 288 | 5.2 | 250 | 3.7 | 113 | 2.4 | 3.1 | 3.0 |
| 07 | 340 | 5.8 | 250 | 4.4 | 111 | 2.8 | | 2.9 |
| 08 | 330 | 6.2 | 230 | 4.4 | 110 | 3.1 | 3.8 | 2.9 |
| 09 | 340 | 6.7 | 225 | 4.6 | 111 | 3.3 | 4.2 | 2.9 |
| 10 | 350 | 6.8 | 228 | 4.7 | 111 | 3.4 | 3.5 | 2.9 |
| 11 | 360 | 6.9 | 230 | 4.8 | 111 | 3.5 | 3.9 | 2.8 |
| 12 | 365 | 6.8 | 242 | 4.9 | 111 | 3.6 | 3.4 | 2.8 |
| 13 | 340 | 7.1 | 232 | 4.8 | 111 | 3.6 | 3.9 | 2.9 |
| 14 | 340 | 7.0 | 240 | 4.7 | 111 | 3.4 | | 2.9 |
| 15 | 330 | 7.0 | 240 | 4.7 | 111 | 3.3 | | 2.9 |
| 16 | 320 | 7.2 | 240 | 4.5 | 113 | 3.2 | | 2.9 |
| 17 | 310 | 7.4 | 250 | 4.2 | 113 | 2.8 | 3.1 | 3.0 |
| 18 | 290 | 7.3 | 260 | 3.8 | 119 | 2.4 | 3.6 | 3.0 |
| 19 | 280 | 7.4 | --- | --- | 133 | 1.8 | 3.5 | 3.0 |
| 20 | 265 | 7.1 | | | | | 2.9 | 3.0 |
| 21 | 260 | 7.0 | | | | | 2.8 | 2.9 |
| 22 | 265 | 6.5 | | | | | | 2.8 |
| 23 | 280 | 5.7 | | | | | | 2.7 |

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 57

Fribourg, Germany (48.1°N, 7.8°E) April 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 4.5 | | | | | | 2.6 |
| 01 | 305 | 4.2 | | | | | 1.8 | 2.6 |
| 02 | 305 | 4.0 | | | | | | 2.6 |
| 03 | 300 | 3.8 | | | | | | 2.7 |
| 04 | 285 | 3.8 | | | | | | 2.7 |
| 05 | 280 | 3.7 | | | 130 | 1.4 | 2.2 | 2.9 |
| 06 | 260 | 4.8 | 260 | --- | 125 | 2.0 | 2.4 | 3.1 |
| 07 | 270 | 5.3 | 248 | 4.1 | 115 | 2.5 | 3.0 | 3.1 |
| 08 | 320 | 5.5 | 235 | 4.3 | 113 | 3.0 | 3.0 | 3.1 |
| 09 | 320 | 5.9 | 238 | 4.5 | 111 | 3.2 | 3.4 | 3.0 |
| 10 | 325 | 6.7 | 230 | 4.6 | 111 | 3.3 | 4.0 | 3.0 |
| 11 | 318 | 7.0 | 225 | 4.7 | 111 | 3.4 | | 3.0 |
| 12 | 328 | 7.2 | 230 | 4.8 | 111 | 3.5 | 3.4 | 2.9 |
| 13 | 312 | 7.5 | 235 | 4.7 | 111 | 3.4 | | 3.0 |
| 14 | 310 | 7.6 | 230 | 4.6 | 111 | 3.3 | | 3.0 |
| 15 | 302 | 7.6 | 240 | 4.4 | 111 | 3.2 | | 3.0 |
| 16 | 300 | 7.6 | 245 | 4.1 | 111 | 2.8 | 1.7 | 3.0 |
| 17 | 280 | 7.4 | 250 | 4.0 | 117 | 2.5 | | 3.0 |
| 18 | 260 | 7.7 | --- | --- | 123 | 2.1 | 2.7 | 3.0 |
| 19 | 250 | 7.2 | | | | | 1.7 | 3.1 |
| 20 | 245 | 6.6 | | | | | | 3.0 |
| 21 | 250 | 6.0 | | | | | | 2.9 |
| 22 | 270 | 5.0 | | | | | | 2.8 |
| 23 | 290 | 4.6 | | | | | | 2.7 |

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 58

Dakar, French West Africa (14.6°N, 17.4°W) April 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|--------|------|------|-----|-----|-----|-----------|
| 00 | 302 | 7.5 | | | | | | 2.8 |
| 01 | 265 | 6.9 | | | | | 2.8 | 2.8 |
| 02 | 270 | 6.2 | | | | | 3.0 | 2.9 |
| 03 | 255 | 5.8 | | | | | 3.2 | 3.0 |
| 04 | 250 | 5.3 | | | | | 3.3 | 3.0 |
| 05 | 255 | 4.4 | | | | | 3.0 | 3.0 |
| 06 | 255 | 5.7 | | | 121 | 1.6 | 3.0 | 3.1 |
| 07 | 245 | 7.8 | 238 | --- | 113 | 2.5 | 3.7 | 3.2 |
| 08 | 270 | 9.4 | 230 | --- | 111 | 3.1 | 3.2 | 3.1 |
| 09 | 288 | 10.6 | 215 | 5.0 | 109 | 3.4 | | 3.0 |
| 10 | 300 | 11.6 | 220 | 5.1 | 107 | 3.6 | 3.9 | 2.9 |
| 11 | 325 | 12.6 | 210 | 5.2 | 107 | 3.8 | 4.1 | 2.8 |
| 12 | 350 | 13.5 | 208 | 5.1 | 107 | 3.9 | 4.2 | 2.7 |
| 13 | 335 | (14.0) | 200 | 5.0 | 107 | 3.9 | | 2.6 |
| 14 | 310 | (14.0) | 215 | 5.0 | 107 | 3.7 | 4.6 | (2.6) |
| 15 | 310 | 14.0 | 222 | 4.9 | 107 | 3.4 | 4.8 | (2.8) |
| 16 | 280 | 14.0 | 228 | 4.6 | 109 | 3.1 | 4.2 | (2.7) |
| 17 | 265 | 14.0 | 232 | --- | 110 | 2.5 | 3.8 | 2.7 |
| 18 | 250 | 13.0 | --- | --- | --- | --- | 3.8 | 2.8 |
| 19 | 290 | 12.0 | | | | | 3.4 | 2.6 |
| 20 | 340 | 11.2 | | | | | | (2.5) |
| 21 | 345 | 10.6 | | | | | | 2.5 |
| 22 | 335 | 9.3 | | | | | | 2.6 |
| 23 | 330 | 8.5 | | | | | | 2.7 |

Time: Local.

Sweep: 1.25 Mc to 20.0 Mc in 10 minutes, automatic operation.

Table 59

Macquarie I. (54.5°S, 159.0°E) April 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | (330) | (3.8) | | | | | 3.8 | (2.9) |
| 01 | (350) | (3.7) | | | | | 3.8 | (2.9) |
| 02 | (350) | (4.3) | | | | | 3.5 | (2.9) |
| 03 | (300) | (3.7) | | | | | 3.5 | (3.0) |
| 04 | (300) | (3.9) | | | | | 3.5 | (3.0) |
| 05 | (265) | (3.5) | | | | | 3.3 | (3.0) |
| 06 | 300 | 3.0 | | | | | 2.0 | 2.9 |
| 07 | 250 | 4.4 | | | 110 | 1.8 | 2.0 | 3.0 |
| 08 | 250 | 5.4 | --- | --- | 110 | 2.2 | | 3.2 |
| 09 | 250 | 5.8 | --- | --- | 110 | 2.6 | | 3.2 |
| 10 | 260 | 7.0 | 230 | 4.0 | 110 | 3.0 | | 3.1 |
| 11 | 270 | 6.8 | 230 | 4.0 | 110 | 2.9 | | 3.1 |
| 12 | 255 | 8.3 | 225 | --- | 110 | 3.0 | | 3.1 |
| 13 | 260 | 7.4 | 240 | 4.0 | 115 | 2.8 | | 3.1 |
| 14 | 270 | 7.4 | 250 | 4.0 | 120 | 2.8 | | 3.1 |
| 15 | 250 | 7.4 | --- | --- | 120 | 2.4 | | 3.1 |
| 16 | 245 | 6.8 | --- | --- | 140 | 2.0 | | 3.1 |
| 17 | 250 | 6.8 | | | | | 3.6 | 3.1 |
| 18 | 265 | 5.5 | | | | | 3.6 | 3.0 |
| 19 | (310) | (4.4) | | | | | (4.2) | (3.0) |
| 20 | (290) | (4.5) | | | | | 5.0 | (2.9) |
| 21 | (285) | (4.5) | | | | | 4.5 | (3.0) |
| 22 | --- | --- | | | | | 5.2 | --- |
| 23 | --- | --- | | | | | 4.7 | --- |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 60

Domont, France (49.0°N, 2.3°E) March 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 270 | 3.4 | | | | | | 2.9 |
| 01 | <280 | 3.2 | | | | | | 2.8 |
| 02 | 280 | 3.2 | | | | | | 2.9 |
| 03 | 280 | 3.0 | | | | | | 2.9 |
| 04 | 280 | 2.6 | | | | | | 3.0 |
| 05 | 250 | 2.6 | | | | | | 3.2 |
| 06 | 240 | 3.6 | 220 | --- | 110 | 1.7 | | 3.3 |
| 07 | 220 | 5.0 | 200 | --- | 100 | 1.9 | | 3.6 |
| 08 | 220 | 5.7 | 200 | --- | 100 | 2.4 | | 3.5 |
| 09 | 230 | 7.1 | 190 | 4.0 | 100 | 2.7 | 2.9 | 3.4 |
| 10 | 255 | 7.4 | 180 | 4.0 | 90 | 2.9 | | 3.3 |
| 11 | 250 | 7.4 | 180 | 4.0 | 95 | 3.0 | | 3.4 |
| 12 | 240 | 7.4 | 180 | 4.0 | 90 | 3.1 | | 3.3 |
| 13 | 240 | 7.3 | 190 | 4.1 | 90 | 3.1 | | 3.4 |
| 14 | 240 | 7.4 | 190 | 4.2 | 90 | 2.9 | | 3.3 |
| 15 | 240 | 7.6 | 200 | --- | 100 | 2.7 | | 3.4 |
| 16 | 230 | 7.8 | 200 | --- | 100 | 2.4 | | 3.4 |
| 17 | 225 | 7.4 | 210 | --- | 100 | 2.0 | | 3.4 |
| 18 | 230 | 6.7 | 200 | --- | 100 | 1.7 | | 3.4 |
| 19 | 205 | 5.7 | 200 | --- | | | | 3.3 |
| 20 | 200 | 4.8 | | | | | | 3.3 |
| 21 | 230 | 4.2 | | | | | | 3.1 |
| 22 | 255 | 3.8 | | | | | | 3.0 |
| 23 | 270 | 3.6 | | | | | | 2.9 |

Time: 0.0°.

Sweep: 1.5 Mc to 16.0 Mc in 1 minute 30 seconds.

Table 61

Poitiers, France (46.6°N, 0.3°E)

March 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | <330 | 3.9 | | | | | | (2.8) |
| 01 | <330 | 3.5 | | | | | | (2.7) |
| 02 | <330 | 3.6 | | | | | | (2.8) |
| 03 | <330 | 3.5 | | | | | | --- |
| 04 | <320 | 3.2 | | | | | | --- |
| 05 | --- | 2.6 | | | | | | --- |
| 06 | 280 | 3.7 | | | | | | (3.2) |
| 07 | 235 | 5.2 | | | | | | (3.4) |
| 08 | 250 | 5.8 | 225 | 3.6 | | | | (3.2) |
| 09 | 255 | 6.7 | 220 | 4.0 | | | | 3.2 |
| 10 | 270 | 7.2 | 210 | 4.1 | | | | 3.3 |
| 11 | 270 | 7.2 | 220 | 4.2 | | | | 3.2 |
| 12 | 280 | 7.4 | 215 | 4.3 | | | | 3.3 |
| 13 | 275 | 7.4 | 205 | 4.2 | | | | 3.2 |
| 14 | 260 | 7.0 | 225 | 4.1 | | | | 3.3 |
| 15 | 260 | 7.5 | <230 | 4.0 | | | | 3.3 |
| 16 | 260 | 7.5 | 230 | --- | | | | 3.3 |
| 17 | 250 | 7.4 | 230 | --- | | | | 3.4 |
| 18 | 230 | 7.2 | --- | --- | | | | (3.4) |
| 19 | 235 | 6.0 | | | | | | (3.0) |
| 20 | 250 | 5.3 | | | | | | (3.0) |
| 21 | 270 | 4.6 | | | | | | 3.0 |
| 22 | <300 | 4.1 | | | | | | (2.8) |
| 23 | <330 | 4.0 | | | | | | (2.8) |

Time: 0.0°.

Sweep: 3.1 Mc to 11.8 Mc in 1 minute 15 seconds.

Table 62

Macquarie I. (54.5°S, 159.0°E)

March 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-------|-----|-----------|
| 00 | 300 | 3.6 | | | | | 3.8 | (3.0) |
| 01 | (325) | (3.8) | | | | | 4.2 | (3.0) |
| 02 | 350 | 3.6 | | | | | 3.6 | 2.9 |
| 03 | 300 | 3.1 | | | | | 2.0 | 3.0 |
| 04 | 300 | 3.1 | | | | | 3.4 | 3.0 |
| 05 | 250 | 3.1 | | | | | | 3.0 |
| 06 | 230 | 3.6 | | | 115 | 1.8 | | 3.1 |
| 07 | 230 | 4.4 | | | 120 | 2.2 | | 3.3 |
| 08 | 275 | 5.0 | 210 | 4.0 | 110 | 2.6 | | 3.2 |
| 09 | 300 | 5.2 | 210 | 4.1 | 110 | (2.8) | | 3.2 |
| 10 | 300 | 5.8 | 200 | 4.2 | 110 | (3.0) | | 3.2 |
| 11 | 300 | 5.9 | 210 | 4.3 | 110 | (3.1) | | 3.2 |
| 12 | 305 | 6.0 | 200 | 4.4 | 110 | (3.1) | | 3.2 |
| 13 | 310 | 6.0 | 210 | 4.4 | 110 | (3.1) | | 3.1 |
| 14 | 300 | 6.1 | 205 | 4.3 | 110 | (3.0) | | 3.1 |
| 15 | 300 | 6.2 | 220 | 4.2 | 100 | (2.8) | | 3.1 |
| 16 | 280 | 6.2 | 225 | 3.8 | 110 | (2.7) | | 3.1 |
| 17 | 255 | 5.8 | 260 | --- | 110 | (2.2) | | 3.1 |
| 18 | 250 | 5.5 | | | 135 | (2.0) | 2.6 | 3.0 |
| 19 | (270) | (5.5) | | | | | | (3.3) |
| 20 | 245 | 5.5 | | | | | 4.3 | 3.2 |
| 21 | 250 | 4.6 | | | | | 4.0 | 3.1 |
| 22 | 255 | 4.1 | | | | | 4.0 | 3.0 |
| 23 | 285 | 4.4 | | | | | 4.2 | 3.0 |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 63

Terre Adelie (66.8°S, 141.4°E)

March 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|------|------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 5.3 | 250 | 3.8 | 115 | 2.4 | 1.5 | |
| 01 | 320 | 6.0 | 240 | 4.0 | 120 | 2.6 | 1.5 | |
| 02 | 310 | 5.6 | 230 | 4.0 | 110 | 2.6 | 1.5 | |
| 03 | 300 | 5.7 | 230 | 4.0 | 110 | 2.7 | 1.5 | |
| 04 | 350 | 5.6 | 230 | 3.9 | 115 | 2.6 | 1.5 | |
| 05 | 315 | 6.0 | 230 | 3.9 | 120 | 2.6 | 1.5 | |
| 06 | 310 | 5.7 | 235 | 3.7 | 125 | 2.4 | 2.0 | |
| 07 | 300 | 5.6 | 250 | 3.6 | 135 | 1.7 | 1.5 | |
| 08 | 270 | 5.7 | 250 | 3.5 | 145 | 1.5 | 1.5 | |
| 09 | 260 | 5.8 | | | | | 2.4 | |
| 10 | 250 | 5.5 | | | | | 1.5 | |
| 11 | 250 | 5.4 | | | | | 1.5 | |
| 12 | 250 | 4.5 | | | | | 1.9 | |
| 13 | 270 | 3.6 | | | | | 1.5 | |
| 14 | 270 | 2.8 | | | | | 1.9 | |
| 15 | 300 | 2.8 | | | | | 1.5 | |
| 16 | 300 | 2.8 | | | | | 1.5 | |
| 17 | 300 | 2.6 | | | | | 3.0 | |
| 18 | 320 | 2.7 | | | | | 2.3 | |
| 19 | 300 | 2.4 | | | | | 2.7 | |
| 20 | 280 | 2.8 | | | | | 3.7 | |
| 21 | 280 | 3.5 | 250 | | | 1.5 | 2.8 | |
| 22 | 300 | 4.5 | 250 | 3.6 | 130 | 1.5 | 1.5 | |
| 23 | 290 | 5.0 | 240 | 3.5 | 120 | 2.4 | 1.5 | |

Time: 0.0°.

Sweep: 1.5 Mc to 17.0 Mc in 1 minute.

Table 64

Macquarie I. (54.5°S, 159.0°E)

February 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | 300 | 3.6 | | | | | 3.8 | 2.9 |
| 01 | (300) | (3.3) | | | | | 3.7 | (3.0) |
| 02 | (300) | (3.5) | | | | | 3.6 | (3.0) |
| 03 | (325) | (3.2) | | | | | 3.6 | (2.8) |
| 04 | 290 | 3.2 | | | | | 3.2 | (3.0) |
| 05 | 250 | 3.8 | | | | | 2.5 | (3.2) |
| 06 | 250 | 4.3 | | | 110 | 2.2 | | 3.1 |
| 07 | 250 | 4.8 | 220 | 3.9 | 110 | 2.6 | 3.0 | 3.2 |
| 08 | 350 | 5.1 | 215 | 4.2 | 110 | 3.0 | | 3.0 |
| 09 | 350 | 5.6 | 210 | 4.4 | 110 | 3.2 | 3.1 | 2.9 |
| 10 | 340 | 6.2 | 200 | 4.4 | 110 | 3.2 | 3.5 | 3.0 |
| 11 | 325 | 6.0 | 200 | 4.5 | 100 | 3.4 | | 3.1 |
| 12 | 330 | 6.0 | 200 | 4.5 | 105 | 3.5 | | 3.1 |
| 13 | 330 | 6.0 | 205 | 4.5 | 105 | 3.4 | | 3.0 |
| 14 | 330 | 6.4 | 210 | 4.4 | 110 | 3.3 | | 3.0 |
| 15 | 320 | 6.6 | 210 | 4.3 | 110 | 3.2 | | 3.0 |
| 16 | 300 | 6.5 | 220 | 4.2 | 110 | 3.0 | | 3.1 |
| 17 | 290 | 6.5 | 220 | 4.2 | 110 | 2.7 | 3.1 | 2.9 |
| 18 | 260 | 6.4 | --- | --- | 110 | 2.4 | 2.9 | 3.1 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 280 | 5.0 | | | | | 3.6 | 2.9 |
| 21 | 260 | 5.0 | | | | | 5.0 | 3.0 |
| 22 | (270) | (4.5) | | | | | 5.0 | (3.0) |
| 23 | 300 | 3.8 | | | | | 4.9 | 3.0 |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 65

Macquarie I. (54.5°S, 159.0°E)

January 1951

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | 280 | 4.1 | | | | | 4.4 | 3.0 |
| 01 | 300 | 3.6 | | | | | 4.4 | 3.0 |
| 02 | 300 | 3.4 | | | | | 4.0 | 3.1 |
| 03 | 285 | 3.4 | | | | | 3.6 | 3.0 |
| 04 | 260 | 3.6 | | | | | 3.0 | 3.1 |
| 05 | 250 | 4.1 | --- | --- | 100 | 2.4 | 3.6 | 3.1 |
| 06 | 255 | 4.7 | 220 | 3.9 | 100 | 2.6 | 3.5 | 3.2 |
| 07 | 350 | 5.2 | 210 | 4.3 | 100 | 3.0 | 3.6 | 3.1 |
| 08 | 345 | 5.4 | 200 | 4.4 | 100 | 3.2 | 3.5 | 3.0 |
| 09 | 330 | 5.7 | 200 | 4.5 | 100 | 3.3 | 3.6 | 3.0 |
| 10 | 340 | 5.8 | 200 | 4.5 | 100 | 3.5 | 3.7 | 3.1 |
| 11 | 350 | 5.7 | 200 | 4.6 | 100 | 3.5 | 3.6 | 3.0 |
| 12 | 355 | 5.8 | 200 | 4.6 | 100 | 3.5 | 3.6 | 3.0 |
| 13 | 350 | 6.0 | 200 | 4.6 | 100 | 3.5 | 3.5 | 3.0 |
| 14 | 345 | 6.0 | 200 | 4.5 | 100 | 3.5 | 3.5 | 3.0 |
| 15 | 330 | 6.4 | 200 | 4.5 | 100 | 3.3 | 3.0 | 3.0 |
| 16 | 310 | 6.3 | 200 | 4.5 | 100 | 3.2 | 3.4 | 3.0 |
| 17 | 300 | 6.2 | 210 | 4.2 | 110 | 2.9 | 3.5 | 3.1 |
| 18 | 270 | 6.1 | 215 | 3.8 | 110 | 2.6 | 3.6 | 3.2 |
| 19 | (260) | (5.1) | | | | | (3.6) | (3.1) |
| 20 | 270 | 5.0 | | | | | 4.0 | 3.0 |
| 21 | 265 | 4.8 | | | | | 3.8 | 3.1 |
| 22 | 280 | 4.5 | | | | | 4.6 | 3.0 |
| 23 | 300 | 4.4 | | | | | 4.5 | 3.0 |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 66

Macquarie I. (54.5°S, 159.0°E)

December 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | 205 | 4.5 | | | | | 3.8 | 3.0 |
| 01 | 255 | 4.4 | | | | | 3.6 | 3.0 |
| 02 | 250 | 4.3 | | | | | 2.8 | 3.0 |
| 03 | 250 | 4.0 | | | | | 2.7 | 3.1 |
| 04 | 240 | 4.0 | | | 100 | 2.0 | 3.2 | 3.2 |
| 05 | 230 | 4.5 | --- | --- | 100 | 2.4 | 3.2 | 3.2 |
| 06 | 280 | 5.1 | 210 | 4.0 | 100 | 2.7 | 3.3 | 3.1 |
| 07 | 325 | 5.4 | 200 | 4.3 | 100 | 2.9 | 3.5 | 3.1 |
| 08 | 320 | 5.6 | 200 | 4.4 | 100 | 3.2 | 3.5 | 3.1 |
| 09 | 320 | 5.8 | 200 | 4.5 | 100 | 3.4 | 3.6 | 3.1 |
| 10 | 310 | 6.0 | 190 | 4.6 | 100 | 3.4 | 3.6 | 3.0 |
| 11 | 350 | 5.9 | 190 | 4.8 | 100 | 3.5 | 3.6 | 3.0 |
| 12 | 330 | 6.0 | 195 | 4.6 | 100 | 3.5 | 3.6 | 3.0 |
| 13 | 320 | 6.2 | 190 | 4.7 | 100 | 3.5 | 3.6 | 3.1 |
| 14 | 335 | 6.5 | 200 | 4.6 | 100 | 3.5 | 3.5 | 3.0 |
| 15 | 305 | 6.4 | 195 | 4.5 | 100 | 3.4 | | 3.0 |
| 16 | 300 | 6.5 | 200 | 4.4 | 100 | 3.2 | | 3.1 |
| 17 | 250 | 6.7 | 200 | 4.2 | 100 | 2.9 | 3.6 | 3.1 |
| 18 | 255 | 6.5 | 205 | 3.8 | 100 | 2.5 | 3.4 | 3.2 |
| 19 | (240) | (6.4) | | | --- | --- | (3.6) | (3.1) |
| 20 | 240 | 6.0 | | | | | 3.7 | 3.1 |
| 21 | 250 | 5.0 | | | | | 4.0 | 3.1 |
| 22 | 260 | 5.5 | | | | | 4.3 | 3.1 |
| 23 | 260 | 5.0 | | | | | 4.1 | 3.0 |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 67

Macquarie I. (54.5°S, 159.0°E) November 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-----|-----------|
| 00 | (285) | (4.2) | | | | | 3.8 | (3.0) |
| 01 | (280) | (4.0) | | | | | 3.6 | (2.9) |
| 02 | (260) | 3.4 | | | | | 3.4 | 2.9 |
| 03 | 255 | 3.6 | | | | | 2.7 | 3.0 |
| 04 | 245 | 3.7 | | | | | 2.8 | 3.0 |
| 05 | 245 | 4.4 | | | 100 | 2.2 | 2.6 | 3.1 |
| 06 | 230 | 4.7 | --- | --- | 100 | 2.6 | | 3.1 |
| 07 | 340 | 5.0 | 200 | 4.2 | 100 | 2.9 | 3.2 | 3.0 |
| 08 | 360 | 5.3 | 200 | 4.4 | 100 | 3.0 | 3.5 | 2.9 |
| 09 | 360 | 5.6 | 200 | 4.5 | 100 | 3.2 | 3.4 | 2.9 |
| 10 | 355 | 5.7 | 200 | 4.5 | 100 | 3.3 | | 2.9 |
| 11 | 335 | 5.8 | 200 | 4.5 | 100 | 3.4 | 3.4 | 3.0 |
| 12 | 320 | 6.1 | 200 | 4.6 | 100 | 3.4 | | 3.0 |
| 13 | 340 | 6.2 | 200 | 4.5 | 100 | 3.4 | 3.6 | 3.0 |
| 14 | 330 | 6.0 | 200 | 4.5 | 100 | 3.2 | | 3.0 |
| 15 | 300 | 6.4 | 200 | 4.4 | 100 | 3.1 | | 3.0 |
| 16 | 280 | 6.5 | 200 | 4.3 | 100 | 2.9 | 3.2 | 3.0 |
| 17 | 260 | 6.6 | 200 | 4.2 | 100 | 2.6 | 3.5 | 3.0 |
| 18 | 250 | 6.3 | --- | --- | 100 | 2.4 | 3.6 | 3.1 |
| 19 | --- | --- | | | | | --- | --- |
| 20 | (230) | (6.0) | | | | | 3.6 | (3.2) |
| 21 | (255) | (4.9) | | | | | 4.3 | (3.0) |
| 22 | (250) | (5.0) | | | | | 3.9 | (3.0) |
| 23 | (260) | (4.6) | | | | | 3.6 | (2.9) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 68

Macquarie I. (54.5°S, 159.0°E) October 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | 260 | 3.8 | | | | | 3.6 | 3.0 |
| 01 | 260 | 3.5 | | | | | 2.8 | 3.0 |
| 02 | 260 | 3.5 | | | | | 3.5 | 3.0 |
| 03 | 250 | 3.2 | | | | | 3.2 | 2.9 |
| 04 | 280 | 2.8 | | | | | 3.0 | 2.9 |
| 05 | 240 | 3.6 | | | | | | 3.0 |
| 06 | 225 | 4.4 | | | 100 | 2.2 | | 3.2 |
| 07 | 210 | 5.0 | --- | --- | 100 | 2.6 | | 3.1 |
| 08 | 270 | 5.4 | 200 | 4.4 | 100 | 2.9 | | 3.1 |
| 09 | 315 | 5.6 | 200 | 4.4 | 100 | 3.1 | | 3.1 |
| 10 | 330 | 5.7 | 200 | 4.4 | 100 | 3.2 | | 3.1 |
| 11 | 330 | 5.9 | 200 | 4.5 | 100 | 3.3 | | 3.0 |
| 12 | 330 | 6.0 | 200 | 4.5 | 100 | 3.3 | | 3.0 |
| 13 | 315 | 6.4 | 190 | 4.4 | 100 | 3.2 | | 3.0 |
| 14 | 300 | 6.6 | 190 | 4.5 | 100 | 3.2 | | 3.0 |
| 15 | 300 | 6.6 | 200 | 4.2 | 100 | 3.0 | | 3.0 |
| 16 | 300 | 6.6 | 200 | 4.0 | 100 | 2.7 | | 3.0 |
| 17 | 250 | 6.0 | --- | --- | 100 | 2.3 | 3.3 | 3.1 |
| 18 | 250 | 6.0 | --- | --- | 100 | 2.0 | 4.3 | 3.0 |
| 19 | (240) | (6.0) | | | | | (4.4) | (3.1) |
| 20 | (280) | (5.5) | | | | | 4.4 | (3.0) |
| 21 | (270) | (4.6) | | | | | 3.6 | (3.0) |
| 22 | (250) | (4.6) | | | | | 3.6 | (3.0) |
| 23 | (300) | (4.5) | | | | | 4.3 | (2.9) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 69

Macquarie I. (54.5°S, 159.0°E) September 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | (300) | (3.2) | | | | | 4.0 | (3.0) |
| 01 | (300) | (3.0) | | | | | 4.4 | (3.0) |
| 02 | (280) | (3.0) | | | | | 3.8 | (3.0) |
| 03 | 270 | 3.0 | | | | | 2.8 | 3.0 |
| 04 | 265 | 3.0 | | | | | 3.0 | 3.0 |
| 05 | 250 | 2.9 | | | | | 3.0 | 3.0 |
| 06 | 240 | 3.6 | | | --- | E | 3.2 | 3.0 |
| 07 | 230 | 4.2 | --- | --- | --- | --- | 3.3 | 3.0 |
| 08 | 255 | 5.0 | 210 | 3.8 | 100 | 2.7 | 3.3 | 3.0 |
| 09 | 280 | 5.0 | 200 | 4.1 | 100 | 2.8 | 3.2 | 3.0 |
| 10 | 300 | 5.4 | 200 | 4.2 | 100 | 3.0 | 3.2 | 3.0 |
| 11 | 300 | 5.8 | 195 | 4.3 | 100 | 3.1 | 3.2 | 3.0 |
| 12 | 300 | 6.0 | 200 | 4.3 | 100 | 3.0 | 3.1 | 3.0 |
| 13 | 260 | 6.4 | 200 | 4.2 | 100 | 3.1 | 3.3 | 3.0 |
| 14 | 280 | 6.2 | 200 | 4.1 | 100 | 2.9 | 3.2 | 3.0 |
| 15 | 260 | 5.6 | 200 | 3.8 | 100 | 2.8 | 3.2 | 3.0 |
| 16 | 250 | 5.8 | 210 | --- | 100 | 2.3 | 3.2 | 3.0 |
| 17 | 240 | 5.8 | | | 115 | 1.9 | 3.2 | 3.0 |
| 18 | 240 | 5.2 | | | | | 2.1 | 3.2 |
| 19 | (240) | (5.0) | | | | | (3.5) | (3.0) |
| 20 | 240 | 4.2 | | | | | 3.5 | 3.0 |
| 21 | (260) | (3.6) | | | | | 4.4 | (3.1) |
| 22 | (265) | (3.3) | | | | | 3.7 | (3.0) |
| 23 | (270) | (3.8) | | | | | 4.5 | (3.0) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 70

Macquarie I. (54.5°S, 159.0°E) August 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | (260) | (2.8) | | | | | 4.3 | (3.0) |
| 01 | (255) | (2.3) | | | | | 3.6 | (3.0) |
| 02 | (295) | (3.0) | | | | | 4.1 | (3.1) |
| 03 | (250) | (2.3) | | | | | 3.5 | (3.1) |
| 04 | (270) | (2.7) | | | | | 4.0 | (3.0) |
| 05 | 260 | 2.3 | | | | | 3.5 | 3.0 |
| 06 | (260) | (2.2) | | | | | 3.5 | (3.1) |
| 07 | 245 | 3.0 | | | | | 2.2 | 3.1 |
| 08 | 210 | 4.1 | | | 100 | 1.9 | 2.2 | 3.5 |
| 09 | 210 | 4.8 | | | 100 | 2.3 | | 3.4 |
| 10 | 225 | 5.0 | 200 | --- | 95 | 2.6 | | 3.4 |
| 11 | 250 | 5.7 | 190 | 3.8 | 100 | 2.7 | | 3.3 |
| 12 | 250 | 5.8 | 195 | --- | 100 | 2.8 | 3.0 | 3.2 |
| 13 | 240 | 6.0 | 190 | 3.6 | 100 | 2.7 | | 3.3 |
| 14 | 250 | 6.0 | 200 | 3.6 | 100 | 2.6 | | 3.3 |
| 15 | (240) | (6.3) | 215 | --- | --- | --- | 2.5 | (3.2) |
| 16 | (230) | (5.6) | | | 100 | 2.1 | | (3.3) |
| 17 | (245) | (5.5) | | | | | 2.4 | (3.2) |
| 18 | (250) | (4.5) | | | | | 2.2 | (3.3) |
| 19 | (260) | (4.0) | | | | | (2.7) | (3.0) |
| 20 | (245) | (3.4) | | | | | (2.8) | (3.1) |
| 21 | (270) | (3.5) | | | | | 4.4 | (3.1) |
| 22 | (280) | (2.8) | | | | | 3.5 | (3.0) |
| 23 | (260) | (2.6) | | | | | 4.0 | (3.0) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 71

Macquarie I. (54.5°S, 159.0°E) July 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | 300 | 3.4 | | | | | 4.0 | 3.0 |
| 01 | 270 | 3.5 | | | | | 3.4 | 3.0 |
| 02 | 260 | 3.2 | | | | | 3.1 | 3.0 |
| 03 | 260 | 3.2 | | | | | 3.1 | 3.0 |
| 04 | 250 | 3.1 | | | | | 2.2 | 3.0 |
| 05 | 260 | 2.6 | | | | | 2.1 | 3.1 |
| 06 | 250 | 2.4 | | | | | 2.0 | 3.1 |
| 07 | 250 | 2.6 | | | | | 2.2 | 3.1 |
| 08 | 210 | 3.8 | | | --- | E | 2.2 | 3.5 |
| 09 | 200 | 5.1 | | | 100 | 2.1 | 2.2 | 3.6 |
| 10 | 200 | 5.6 | --- | --- | 100 | 2.4 | 2.6 | 3.5 |
| 11 | 200 | 6.6 | --- | --- | 100 | 2.6 | | 3.6 |
| 12 | (200) | (7.0) | --- | --- | 100 | 2.6 | (2.7) | (3.6) |
| 13 | 200 | 7.1 | --- | --- | 100 | 2.6 | | 3.5 |
| 14 | 200 | 7.4 | --- | --- | 100 | 2.4 | | 3.6 |
| 15 | (200) | (7.2) | | | --- | 2.3 | (2.5) | (3.6) |
| 16 | (205) | (7.1) | | | --- | E | | (3.5) |
| 17 | 205 | 6.4 | | | | | (2.0) | 3.4 |
| 18 | (215) | (4.5) | | | | | 2.0 | (3.2) |
| 19 | --- | --- | | | | | --- | --- |
| 20 | (260) | (3.5) | | | | | 4.5 | (3.2) |
| 21 | 250 | 3.1 | | | | | 3.2 | 3.1 |
| 22 | 275 | 3.0 | | | | | 4.3 | 3.0 |
| 23 | (265) | (3.5) | | | | | 4.6 | (3.1) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 72*

Macquarie I. (54.5°S, 159.0°E) June 1950

| Time | h'F2 | foF2 | h'F1 | foF1 | h'E | foE | fEs | (M3000)F2 |
|------|-------|-------|------|------|-----|-----|-------|-----------|
| 00 | (275) | (3.4) | | | | | (3.2) | (3.4) |
| 01 | (260) | (3.4) | | | | | (3.4) | (3.2) |
| 02 | --- | --- | | | | | (2.3) | --- |
| 03 | (255) | (3.6) | | | | | | (3.2) |
| 04 | (255) | (3.3) | | | | | | (3.0) |
| 05 | (255) | (3.2) | | | | | | (3.1) |
| 06 | (225) | (2.8) | | | | | | (3.3) |
| 07 | (240) | (2.8) | | | | | | (3.4) |
| 08 | (200) | (4.2) | | | --- | --- | (2.2) | (3.0) |
| 09 | (200) | (5.5) | | | --- | 1.9 | (2.0) | (3.7) |
| 10 | (200) | (6.6) | | | 100 | 2.3 | (2.4) | (3.8) |
| 11 | (195) | (7.0) | | | --- | --- | (2.7) | (3.8) |
| 12 | (200) | (7.1) | | | --- | --- | | (3.7) |
| 13 | --- | --- | | | --- | --- | (3.4) | --- |
| 14 | --- | --- | | | --- | --- | (2.6) | --- |
| 15 | --- | --- | | | --- | --- | | --- |
| 16 | (200) | (6.6) | | | | | (2.1) | (3.6) |
| 17 | --- | --- | | | | | --- | --- |
| 18 | (215) | (4.7) | | | | | | (3.4) |
| 19 | (230) | (4.1) | | | | | | (3.3) |
| 20 | (250) | (3.4) | | | | | (3.6) | (3.1) |
| 21 | --- | --- | | | | | --- | --- |
| 22 | --- | --- | | | | | (5.3) | --- |
| 23 | (260) | (3.4) | | | | | (2.4) | (3.1) |

Time: 157.5°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

*This station began operation on June 13, 1950.

TABLE 73

IONOSPHERIC DATA

National Bureau of Standards
(Institution)

Scaled by: Mc C. E. J. W.
Calculated by: Mc C. W. J. C.

h'F2 Km November 1951
(Characteristic) (Unit) (Month)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|------------------------|-----|-----|------------------------|------------------------|------------------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 270 (270) ^S | 270 | 270 | 270 (300) ^A | 270 (300) ^S | 270 (290) ^S | 270 (290) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 2 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 3 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 4 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 5 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 6 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 7 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 8 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 9 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 10 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 11 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 12 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 13 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 14 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 15 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 16 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 17 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 18 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 19 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 20 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 21 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 22 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 23 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 24 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 25 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 26 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 27 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 28 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 29 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 30 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 31 | 270 (270) ^S | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| Median | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| Count | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

Sweep 1.0 Mc to 2.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 74

Control Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

fo F2 _____ Mc _____ November _____ 1951

(Unit)

(Month)

Observed at Washington, D. C.

National Bureau of Standards

(Institution)

E. J. W.

Scoted by: Mc C.

Calculated by: Mc C. W. J. C.

75°W _____ Mean Time

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|-------|-------|-------|---------|---------|--------|-------|---------|---------|-------|---------|-------|---------|---------|
| 1 | 3.6 F | 3.1 F | 2.8 F | 2.5 F | 2.4 F | 2.3 F | 2.5 F | 5.4 F | 7.5 | 8.4 | 8.5 | 8.6 F | 9.6 | 9.5 | 9.4 | 9.8 | 9.2 | 7.6 F | 6.6 F | 6.2 F | 5.6 | 5.0 | 4.6 F | 4.2 F |
| 2 | (4.3) F | 4.1 F | 4.6 F | 4.0 F | 3.3 F | 3.0 F | 2.9 F | 5.8 | 7.4 | 9.0 | 9.4 | 9.6 | 10.6 | 10.6 | 10.5 | 10.4 F | 9.7 | 9.0 | 7.0 | 6.5 | 5.6 | 5.0 F | 4.6 | 4.1 F |
| 3 | 4.1 | 4.6 | 4.5 | 4.1 F | 3.7 | (1.9) F | 2.3 F | 5.3 F | 7.7 | 8.6 V | 9.5 H | 10.6 | 10.6 | 10.1 | 10.2 F | 10.5 | 9.1 | 8.8 | 8.2 | 6.2 | 5.4 | 4.9 | 4.9 V | 4.1 F |
| 4 | 4.3 F | 4.2 F | (3.6) F | (3.7) F | (3.5) F | (2.4) F | 4.0 | 6.0 | 7.5 | 9.2 | 9.3 | 10.0 | 11.2 | 11.0 | 10.9 | 10.6 | 9.4 | 8.0 | 6.4 | C | C | 4.5 | 4.1 | (4.0) F |
| 5 | (4.0) F | 3.8 | (3.9) F | (3.7) F | 3.8 | 3.6 | 3.2 | 5.4 | 6.3 | 7.6 | 8.6 | 8.8 | 8.8 F | (9.0) V | 9.0 | 9.0 | 9.2 | 7.4 | 5.9 | 4.9 | 3.6 | 3.1 | 2.9 | 2.8 |
| 6 | 2.8 | 2.9 F | 2.5 F | 2.5 F | 2.5 F | 2.3 F | 2.3 F | (4.9) F | 7.0 | 7.6 | 8.0 | 9.7 | 10.0 | 9.6 | 9.1 | 8.8 | 9.0 | 7.4 F | 6.6 | 5.4 | 4.4 F | 4.0 F | 3.7 | (3.7) F |
| 7 | 3.6 | 3.6 | (3.6) F | 3.1 F | (2.5) F | 2.2 F | (2.1) F | 4.7 F | 7.0 | 8.2 | 9.1 | 8.4 | 8.8 | 8.8 | 9.6 | 9.2 | 8.6 | 8.0 | 6.2 F | 5.1 F | 3.6 F | 3.3 F | 3.5 | 3.5 |
| 8 | 3.3 | 3.1 F | 3.1 | 2.7 | 2.7 | 2.3 F | 2.4 F | 5.2 | 6.9 | (8.5) V | 8.6 | 9.2 H | 9.5 | 9.3 | 9.1 | 9.4 | 9.0 | 8.5 | 7.8 | 5.2 | 4.1 | 3.4 F | 3.1 | 2.8 |
| 9 | 2.8 | 3.1 | 3.5 F | 2.9 F | (3.1) F | 3.1 F | 3.1 F | 6.0 | 7.9 | 7.8 H | 8.5 F | 10.1 | 11.2 | 10.6 | 11.4 | 10.2 F | 9.4 F | 8.6 | 7.2 | 6.6 F | 6.2 | 5.7 | 5.4 F | 5.0 F |
| 10 | 4.2 F | 3.2 | 4.6 F | 2.8 F | 3.1 F | 3.3 F | 3.2 F | 5.8 F | 7.0 | 7.1 | 8.3 | 9.2 | 9.6 | 9.3 | 9.0 | 9.0 H | 8.5 | 7.2 F | 5.6 | 5.4 F | 5.5 | 3.8 | 3.3 F | 3.2 |
| 11 | 3.1 | 3.0 | 3.1 F | 3.2 | (3.2) F | 2.7 F | 2.8 | 5.2 | 6.8 | 7.0 | 7.0 | 8.5 | 8.5 | 9.6 | 9.0 | 8.4 | 8.5 | 7.4 | 6.9 | 6.6 | 5.8 | 5.2 F | 5.0 F | 5.2 F |
| 12 | 5.2 F | 4.6 F | 4.0 F | 3.8 | 3.2 F | (2.5) F | (2.5) F | (4.2) F | 5.0 H | 5.6 H | 6.0 H | 6.6 H | 7.0 H | 7.2 H | 7.6 H | 7.2 H | 6.8 F | 6.6 F | (5.0) F | 4.5 F | 4.3 F | 4.2 F | 3.9 F | (3.8) F |
| 13 | 3.0 F | 3.4 F | 3.6 F | 3.6 F | 2.1 F | (2.0) F | (1.8) F | 3.8 F | 5.0 H | 5.5 H | 6.0 H | 6.0 H | 7.0 H | 8.2 H | 8.8 H | 8.1 H | 7.2 F | (7.4) F | 7.4 F | 6.6 F | 6.4 H | 4.4 F | 5.4 H | 6.5 H |
| 14 | (6.0) F | 5.4 F | 5.2 F | 4.0 F | 2.6 F | 2.9 F | 3.3 F | 5.1 H | 7.2 H | 7.3 H | 6.8 H | 6.0 | 9.2 | 8.8 | 8.9 | 9.0 | 8.6 | 7.9 F | 7.5 F | 6.1 F | (4.5) F | 2.8 F | 2.4 F | (3.1) F |
| 15 | 3.1 | 3.3 F | 3.3 | (2.9) F | (1.8) F | (2.0) F | [2.6] F | 6.9 F | 7.2 | 7.0 | 8.2 | 8.8 | 9.7 | 9.2 | 9.3 | 8.4 | 7.9 | 7.6 | 6.0 F | 5.4 | 4.2 F | 3.7 | 3.9 F | 3.5 |
| 16 | 3.9 | 4.1 | 4.2 | 4.3 | 3.7 | 2.6 | 2.4 F | 4.8 F | 6.8 | 7.2 | 8.4 | 8.8 | 9.2 | 8.8 H | 9.0 | 8.4 | 7.4 | 6.8 | 6.0 | 5.6 | 4.3 | 3.4 | 3.2 | 3.1 |
| 17 | 3.0 | 2.9 | 3.3 F | 3.2 F | (3.8) F | (3.3) F | 3.6 | 4.6 | 6.3 | 6.3 | 9.5 | 7.0 | 8.0 | 9.0 | 8.8 | 8.3 | 8.0 | 8.2 | 7.0 F | 6.0 | 4.6 F | 3.1 | 2.7 F | 2.2 F |
| 18 | 2.5 | 2.5 F | 3.0 F | 3.8 F | 3.0 F | 2.5 F | 2.3 | 4.5 | 6.8 | 8.0 | 7.8 | 8.4 | 8.3 | 9.1 | 8.4 | 8.2 | 7.5 | 7.0 | 5.8 F | 4.3 | (3.4) F | 3.1 | 3.0 F | 2.8 F |
| 19 | 2.7 F | 2.1 F | 3.5 F | 3.7 F | 3.9 F | 3.3 F | 3.0 | (5.4) F | 7.2 | 7.3 | 7.3 | 8.4 H | 8.5 | 9.4 | 8.2 | 8.4 | 8.5 | 7.0 | (5.8) F | 5.1 | (4.8) F | 3.5 F | 3.2 | 3.2 |
| 20 | 3.3 | 3.3 | 3.4 F | 3.5 F | (3.5) F | 3.1 | 3.0 F | 4.4 F | 6.0 | 6.8 | 7.7 | 8.4 | 8.7 | 9.6 | 10.0 | 9.2 F | 9.2 F | 8.7 F | 6.6 | 6.3 | (5.0) F | 4.6 F | 4.1 F | 4.0 F |
| 21 | 3.6 F | 3.5 F | 3.7 | 3.6 | 3.6 | 3.4 | 3.2 F | 3.7 F | 4.7 F | 5.6 H | 6.3 F | 7.0 F | 7.2 F | 7.1 F | 7.6 F | 7.5 F | 8.0 F | 6.7 F | (6.1) F | 5.2 F | 4.9 | 4.7 | (4.2) F | (4.3) F |
| 22 | 4.4 F | 3.8 F | (3.7) F | 3.7 | 3.8 | 3.7 | 3.3 F | 4.3 | 5.9 | 6.4 | 6.8 | 7.8 | 8.6 | 8.3 | 7.9 | 7.7 F | 7.8 F | 8.2 | 7.4 | 6.2 F | 4.7 | 4.7 | 4.1 F | 3.5 |
| 23 | 3.7 F | 3.8 | 3.5 | 3.9 F | 3.7 | 3.4 | 3.3 F | 4.8 | 7.2 | 7.3 | 7.8 | 9.0 | 9.0 | 9.0 | 9.3 | 8.6 | 9.2 F | 8.1 | 7.7 F | 5.6 | 4.3 F | 3.7 F | 3.4 | 3.1 |
| 24 | 3.0 F | (3.7) F | 3.6 F | (4.0) F | 4.1 F | 3.8 F | 3.3 F | 4.3 | 6.4 | 7.8 | 8.3 | 9.6 | 9.7 | 10.5 | 10.0 | 9.8 | 8.6 F | 7.3 F | 6.0 F | 4.6 | 3.9 F | 3.8 F | 4.0 F | 4.2 F |
| 25 | 4.0 | 3.5 F | 3.5 F | 3.8 F | (3.4) F | 3.1 F | 3.1 F | 4.3 | 6.2 | 7.2 | 7.8 | 8.8 | 9.6 | 9.8 | 9.0 | 9.2 | 8.5 | 7.4 F | 6.6 | 4.6 F | 4.0 | 3.1 | (3.1) F | 3.0 |
| 26 | (3.7) F | 2.4 F | 2.5 F | 2.8 F | 3.7 F | 3.6 F | 3.0 F | 4.5 F | 7.0 | 7.8 | 8.3 | 9.5 | 9.2 F | 9.2 | (9.1) F | 9.0 | 8.0 | 7.0 | 7.0 | 6.0 | 5.4 | 4.2 F | 3.6 | 3.3 F |
| 27 | 3.2 | 3.2 | 3.5 | 3.8 | 3.8 | 3.3 F | 3.3 F | 4.6 F | 7.2 | 7.2 F | 8.2 | 8.6 | 9.3 | 8.2 | 9.0 | 8.2 | 8.6 | 7.4 | 6.2 | 5.3 | 4.5 | 4.0 F | 3.7 | 3.3 F |
| 28 | 3.7 F | 3.6 | 3.7 | 3.4 F | 3.0 V | 3.1 F | 3.2 | 5.0 | 7.0 | 7.5 | 8.2 | 10.2 | 10.0 | 10.2 | 10.0 | 9.8 | 9.2 | 8.2 | 7.4 | 6.2 | 6.0 | 5.2 F | 4.7 | 4.5 |
| 29 | 4.5 | 4.2 F | 3.7 | 3.7 F | 3.8 | 3.4 F | 3.1 F | (4.6) F | 7.0 | 8.6 | 9.4 | 11.2 | 9.4 | 10.0 | 10.0 | 9.4 | 9.0 | 7.9 | 7.4 F | 7.0 | 6.0 F | 5.5 F | 5.2 F | 4.7 F |
| 30 | 3.3 V | 3.0 F | 3.0 F | 3.0 F | 3.5 F | 4.1 | 3.4 | 4.9 | 6.8 | 8.0 | 8.4 | 10.4 | 11.0 | 10.7 | 10.2 | 10.0 | 9.8 | 7.6 F | 6.0 F | 5.3 | 4.1 | 3.5 | [3.6] F | 3.8 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | 3.6 | 3.4 | 3.5 | 3.6 | 3.4 | 3.1 | 3.0 | 4.8 | 7.0 | 7.6 | 8.2 | 8.8 | 9.2 | 9.3 | 9.1 | 9.0 | 8.6 | 7.6 | 6.6 | 5.6 | 4.6 | 4.0 | 3.8 | 3.8 |
| Count | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 30 |

Sweep 1.0 _____ Mc to 25.0 _____ Mc in 0.25 _____ min

Manual ☐ Automatic ☒

TABLE 75
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

National Bureau of Standards
(Institution) E. J. W.
Scaled by: Mc C.
Calculated by: Mc C. W. J. C.

foF2 Mc November 1951
(Char. freq.) (Unit) (Month)

Observed at Washington, D. C.
Lot 38.7°N Long 77.1°W

| Day | | 38.7°N Long 7.7.1°W | | | | | | | | | | | | | | | 75°W | | | | | | | | | | | | | | | Mean Time | | | | | Mc C. | | | | | W J C. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|--|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|--|-----------|--|--|--|--|-------|--|--|--|--|--------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | 0030 | 0130 | 0230 | 0330 | 0430 | 0530 | 0630 | 0730 | 0830 | 0930 | 1030 | 1130 | 1230 | 1330 | 1430 | 1530 | 1630 | 1730 | 1830 | 1930 | 2030 | 2130 | 2230 | 2330 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 10 Mc to 25.0 Mc in 0.25 min
Manual ☐ Automatic ☒

h' FI _____ Km _____

(Characteristic)

(Unit)

November

(Month)

1951

National Bureau of Standards
(Institution)

Observed at Washington, D.C.

Scoled by: Mc G., E. J. W.

Lat 38.7°N, Long. 77.1°WColculated by: Mc C. W. J. C.[illegible]

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

TABLE 77

IONOSPHERIC DATA

fo F1 _____, Mc _____, November _____, 1951
(Characteristic) (Unit) (Month)

Observed at Washington, D. C.

Lat 38.7°N, Long 77.1°W

Notional Bureau of Standards
(Institution)

Scaled by: Mc C., E. J. W.

Calculated by: Mc C., W. J. C.

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|------------------|--------------------|------------------|--------------------|------------------|--------------------|------------------|------------------|----|----|----|----|----|----|----|----|
| 1 | | | | | | | | | Q | L | L | A | L | L | L | L | Q | | | | | | | |
| 2 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 3 | | | | | | | | | L | L | L | L | L | L | L | 3.5 | Q | | | | | | | |
| 4 | | | | | | | | | Q | L | L | B | L | L | L | L | Q | | | | | | | |
| 5 | | | | | | | | | L | L | 4.0 | 4.2 ^H | L | L | L | L | Q | | | | | | | |
| 6 | | | | | | | | | Q | L | L | L | L | L | L | L | Q | | | | | | | |
| 7 | | | | | | | | | Q | Q | L | L | L | 3.6 | L | L | Q | | | | | | | |
| 8 | | | | | | | | | Q | L | L | L | L | L | 4.0 | L | Q | | | | | | | |
| 9 | | | | | | | | | Q | L | A | A | A | L | L | A | Q | | | | | | | |
| 10 | | | | | | | | | Q | Q | Q | L | L | L | Q | Q | Q | | | | | | | |
| 11 | | | | | | | | | L | L | 3.5 | L | L | L | L | Q | | | | | | | | |
| 12 | | | | | | | | | 3.5 ^K | 4.1 ^K | 4.2 ^K | 4.3 ^K | 4.3 ^K | (4.2) ^L | 3.9 ^K | L ^K | | | | | | | | |
| 13 | | | | | | | | | L ^K | 3.8 ^H | 4.1 ^K | (4.2) ^L | 4.4 ^H | 4.3 ^K | 4.0 ^K | L ^K | | | | | | | | |
| 14 | | | | | | | | | | 3.2 ^K | 3.6 ^K | L | L | L | L | L | L | | | | | | | |
| 15 | | | | | | | | | L | L | 3.8 | L | L | L | L | L | L | | | | | | | |
| 16 | | | | | | | | | L | L | L | L | 4.3 ^H | (3.8) ^L | 3.4 ^H | Q | | | | | | | | |
| 17 | | | | | | | | | | L | L | L | L | (4.0) ^L | 3.7 | 3.4 ^H | L | | | | | | | |
| 18 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 19 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 20 | | | | | | | | | L | (3.2) ^L | L | L | L | L | L | L | | | | | | | | |
| 21 | | | | | | | | | L ^K | L ^K | L ^K | (3.7) ^L | L ^K | L ^K | L ^K | L ^K | | | | | | | | |
| 22 | | | | | | | | | L | L | L | L | L | L | B | L | | | | | | | | |
| 23 | | | | | | | | | L | L | L | B | L | L | L | L | | | | | | | | |
| 24 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 25 | | | | | | | | | | L | L | (3.7) ^L | L | L | L | L | | | | | | | | |
| 26 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 27 | | | | | | | | | | L | L | L | A | A | Q | Q | | | | | | | | |
| 28 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 29 | | | | | | | | | | Q | Q | L | L | L | L | L | | | | | | | | |
| 30 | | | | | | | | | | Q | A | A | L | L | L | Q | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | -- | -- | 3.9 | 4.2 | -- | (4.0) | 3.9 | -- | -- | | | | | | | |
| Count | | | | | | | | | 7 | 6 | 5 | 3 | 5 | 5 | 5 | 2 | | | | | | | | |

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

TABLE 78

IONOSPHERIC DATA

h'E (Characteristic) Km (Unit) November, 1951

Observed at Washington, D. C.

National Bureau of Standards (Institution)

Scaled by: McC. E. J. W.

Calculated by: Mc C. W. J. C.

Lat 38.7°N, Long 77.1°W

75°W

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----|----|----|----|----|----|----|
| 1 | | | | | | | | | 120 ^N | 110 ^N | A | A | (110) ^B | (100) ^A | (100) ^A | (120) ^A | (130) ^A | | | | | | | |
| 2 | | | | | | | | | 120 ^B | 130 ^B | B | B | B | (110) ^B | (120) ^A | (120) ^A | B | | | | | | | |
| 3 | | | | | | | | (130) ³ | 120 | (130) ^B | 120 | (120) ^A | (120) ^A | (120) ^A | (120) ^A | (120) ^A | 120 ^A | | | | | | | |
| 4 | | | | | | | | 130 | 120 | 120 | 120 | (120) ^B | 130 | 120 | 120 | 130 | 120 ^A | | | | | | | |
| 5 | | | | | | | | 120 | 120 | 110 | 110 | 100 | 110 | 110 | (110) ^A | 120 | 110 | | | | | | | |
| 6 | | | | | | | | S | 110 ^B | 110 ^N | 110 | 100 | 100 | 100 | 100 | 120 | 110 | | | | | | | |
| 7 | | | | | | | | (120) | 120 | 110 ^N | 110 | 100 | 110 | 110 | 120 | 110 | 120 ^N | | | | | | | |
| 8 | | | | | | | | | 120 | 110 ^N | 110 | 110 | 110 | 110 | 110 | 110 | 120 ^N | | | | | | | |
| 9 | | | | | | | | | 120 | 110 | 110 | (120) ^A | 110 | 110 | 110 | 120 ^N | A | | | | | | | |
| 10 | | | | | | | | | 120 | 120 ^N | 110 | 110 | 100 | 120 | 120 | 120 | 120 ^N | | | | | | | |
| 11 | | | | | | | | | 120 | 110 ^N | 120 | 120 | 120 | 110 | 120 | 120 | 120 ^N | | | | | | | |
| 12 | | | | | | | | | 120 ^N | 110 ^N | 120 | 120 ^N | 120 ^N | 120 ^N | 110 ^N | 120 ^N | 120 ^N | | | | | | | |
| 13 | | | | | | | | | 120 ^N | 120 ^N | (120) ^N | 110 ^N | 120 ^N | (120) ^N | (120) ^N | (120) ^N | B | | | | | | | |
| 14 | | | | | | | | (120) ^N | (110) ^N | 110 ^N | 110 ^N | 110 | 120 | 100 | 120 | 100 | A | | | | | | | |
| 15 | | | | | | | | (120) ³ | 120 ^N | 120 | 110 ^N | 110 | 110 | 120 | 120 | 120 | 120 | | | | | | | |
| 16 | | | | | | | | | 120 | 120 ^N | 120 | 120 | 110 | 110 | 110 | 110 | 120 | | | | | | | |
| 17 | | | | | | | | | 130 | 120 ^N | 130 | 110 | 120 | 110 | 120 | 120 | (120) ^S | | | | | | | |
| 18 | | | | | | | | | A | (110) ^N | 110 | 110 | 110 | 110 | 110 | 120 | 120 | | | | | | | |
| 19 | | | | | | | | | 110 | 120 | 110 | 110 | (120) ^S | 120 | 120 | 120 | 120 | | | | | | | |
| 20 | | | | | | | | | (120) ^A | 110 ^N | 110 | 100 | 100 | 100 | (100) ^A | 110 | A | | | | | | | |
| 21 | | | | | | | | | A | 110 ^N | 110 ^N | (110) ^N | 120 ^N | 120 ^N | 100 ^N | 100 ^N | (130) ^N | | | | | | | |
| 22 | | | | | | | | | 110 | 130 | 100 ^N | (130) ^N | B | B | B | B | B | | | | | | | |
| 23 | | | | | | | | | 120 | (130) ^N | (130) ^N | (120) ^N | 110 | 120 | 120 | 130 | S | | | | | | | |
| 24 | | | | | | | | | 110 | 120 | 110 | (120) ^N | (130) ^N | 120 ^N | 120 | 120 | (130) ^N | | | | | | | |
| 25 | | | | | | | | | (110) ^N | (120) ^N | 120 | 110 | 110 | 120 | 120 | 120 | (120) ^N | | | | | | | |
| 26 | | | | | | | | | 130 | (130) ^N | 110 | 110 | A | A | A | C | (130) ^N | | | | | | | |
| 27 | | | | | | | | | 110 | 120 | 110 | 120 | 110 | 110 | 110 | 110 | 120 | | | | | | | |
| 28 | | | | | | | | | (110) ^N | 120 | 110 | 120 | 110 | B | B | (110) ^N | 130 ^N | | | | | | | |
| 29 | | | | | | | | | 120 | (120) ^N | 120 | 110 | 120 | 120 ^N | 120 ^N | 120 | 120 | | | | | | | |
| 30 | | | | | | | | | 120 ^N | 110 | A | A | A | (120) ^N | (100) ^N | 100 | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| Count | | | | | | | | 6 | 120 | 120 | 110 | 110 | 110 | 110 | 110 | 120 | 120 | | | | | | | |

Sweep 1.0 Mc 102.5 Q. Mc in 0.25 min

Manual ☐ Automatic ☒

fo E
(Characteristic)

Mc
(Unit)

Washington, D. C.
November 1951
(Month)

Observed at
Lat 38.7°N, Long 77.1°W

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

TABLE 79

IONOSPHERIC DATA

National Bureau of Standards
(Institution)

Scaled by: Mc C. E. J. W.

Calculated by: Mc C. W. J. C.

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----|----|----|----|----|----|----|
| 1 | | | | | | | | | 2.6 ^H | B | A | A | B | 3.1 | 3.0 | [2.6] ^A | 2.3 | | | | | | | |
| 2 | | | | | | | | | B | B | B | B | B | | 3.1 | 2.9 | B | | | | | | | |
| 3 | | | | | | | | 1.9 | 2.4 | 2.9 | 3.0 | (3.2) ^A | 3.2 | [3.1] ^A | (3.0) ^A | 2.6 | (2.4) ^P | | | | | | | |
| 4 | | | | | | | | 2.0 | 2.5 | 2.8 | 3.0 | [3.1] ^B | 3.1 | 3.1 | 3.0 | 2.6 | B | | | | | | | |
| 5 | | | | | | | | 2.0 ^H | 2.4 | (3.0) ^P | 3.1 | (3.1) ^A | [3.1] ^A | 3.1 | [3.0] ^A | 2.8 | B | | | | | | | |
| 6 | | | | | | | | 1.7 | (4.5) ^H | 2.7 ^H | 2.9 | 3.1 | 3.1 | 3.1 | 3.0 | 2.7 | 2.2 | | | | | | | |
| 7 | | | | | | | | | 2.4 | (2.8) ^P | (3.1) ^H | 3.1 | 3.2 | 3.2 | 3.0 | 2.7 | 2.2 | | | | | | | |
| 8 | | | | | | | | | 2.3 | 2.6 | [2.8] ^A | 3.1 | 3.2 | 3.2 ^H | 2.9 | 2.7 | 2.3 ^H | | | | | | | |
| 9 | | | | | | | | | 2.3 | 2.6 ^H | 2.9 | 3.1 | 3.1 | 3.1 | 3.0 | 2.7 | A | | | | | | | |
| 10 | | | | | | | | | 2.0 | (4.9) ^P | (3.0) ^A | 3.1 | 3.1 | 3.1 | 3.0 | 2.7 | 2.0 | | | | | | | |
| 11 | | | | | | | | | 2.3 | 2.7 ^H | 3.0 | 3.1 | [3.1] ^A | 3.1 | 3.0 | 2.7 | 2.1 | | | | | | | |
| 12 | | | | | | | | | 2.3 ^K | 2.5 ^K | 2.9 ^K | 3.1 ^K | 3.1 ^K | 3.1 ^K | 3.0 ^K | 2.6 ^K | 2.0 ^K | | | | | | | |
| 13 | | | | | | | | | 2.2 ^K | 2.7 ^K | (2.9) ^A | 3.0 ^K | 3.1 ^K | [3.0] ^B | 3.0 ^K | (2.6) ^B | B ^K | | | | | | | |
| 14 | | | | | | | | 1.8 ^K | [2.2] ^K | 2.5 ^K | 2.9 ^K | 3.0 | 3.1 | 3.0 | 2.9 | 2.6 | A | | | | | | | |
| 15 | | | | | | | | 1.8 | (2.4) ^H | 2.7 | 2.9 ^H | 3.0 | 3.1 ^H | 3.0 | 2.9 | 2.6 | 1.9 | | | | | | | |
| 16 | | | | | | | | | 2.2 ^H | 2.6 | 3.0 | 3.0 | 3.1 ^H | 3.0 | 2.9 ^H | 2.6 | 2.2 | | | | | | | |
| 17 | | | | | | | | | 2.1 | 2.8 ^H | 2.9 | 3.2 ^H | 3.1 | 3.1 | 3.0 ^H | 2.5 | 2.1 ^H | | | | | | | |
| 18 | | | | | | | | | A | 2.7 | 3.0 ^H | 3.1 | 3.1 | 3.1 ^H | 2.9 | 2.5 | 1.9 | | | | | | | |
| 19 | | | | | | | | | 2.2 | 2.7 | 2.9 | 3.0 | 3.1 | 3.1 | 2.9 | 2.6 | 1.6 | | | | | | | |
| 20 | | | | | | | | | 2.1 | 2.6 | 2.8 | 3.0 | 3.1 | 3.0 | [2.2] ^A | (2.4) ^A | A | | | | | | | |
| 21 | | | | | | | | | A ^K | A ^K | 2.7 ^K | [2.9] ^A | 3.1 ^K | 3.0 ^K | [2.7] ^B | (2.5) ^P | 2.1 ^K | | | | | | | |
| 22 | | | | | | | | | (2.1) ^P | (2.5) ^P | (3.0) ^P | (3.1) ^B | B | B | B | B | B | | | | | | | |
| 23 | | | | | | | | | | 2.6 | (2.8) ^B | [2.9] ^B | 3.0 | 2.9 | 2.7 | 2.5 ^H | S | | | | | | | |
| 24 | | | | | | | | | 2.1 ^H | 2.5 | 2.8 | 3.0 ^B | 3.0 | 3.0 | 2.8 | 2.6 | 2.0 ^B | | | | | | | |
| 25 | | | | | | | | | A | A | A | A | A | 3.0 | 2.8 | 2.5 | 1.7 | | | | | | | |
| 26 | | | | | | | | | 2.2 | 2.7 | 2.8 | 3.0 | A | A | A | C | B | | | | | | | |
| 27 | | | | | | | | | 2.1 ^H | 2.5 | 2.9 | 3.0 | 3.1 | 3.0 | 2.8 | 2.5 | 2.1 | | | | | | | |
| 28 | | | | | | | | | A | 2.7 | 3.0 | 3.2 | (3.2) ^B | B | B | (2.5) ^B | 2.1 | | | | | | | |
| 29 | | | | | | | | | 2.1 | [2.5] ^A | 2.9 | 3.0 | 3.2 ^H | 3.0 | 2.8 ^H | 2.5 | 2.1 ^H | | | | | | | |
| 30 | | | | | | | | | 2.1 ^H | 2.6 | A | A | A | (2.9) ^A | 2.7 | 2.5 | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | 1.8 | 2.2 | 2.7 | 2.9 | 3.1 | 3.1 | 3.1 | 2.9 | 2.6 | 2.1 | | | | | | | |
| Count | | | | | | | | 6 | 24 | 26 | 26 | 26 | 24 | 24 | 27 | 28 | 20 | | | | | | | |

Sweep J. O. Mc to 25.0 Mc in 0.25 min
Manual ☐ Automatic ☒

TABLE 80
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D.C.

IONOSPHERIC DATA

Es (Characteristic) Mc, Km (Unit) November 1951
Observed at Washington, D.C.

National Bureau of Standards
(Institution)
Scaled by: Mc C. E. J. W.
Calculated by: Mc C

| Day | Lot 38.7°N | | Long 77.1°W | | Mean Time | | | | | | | | | | | | | | | | | 75°W | | |
|--------|------------|--------|-------------|---------|-----------|--------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|--------|--------|--------|--------|--------|--------|
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 1 | 26700 | 25700 | E | E | 17110 | E | E | E | G | G | 35110 | 68110 | G | 30700 | 26100 | 42700 | 21100 | E | E | E | E | E | E | 30110 |
| 2 | 28700 | E | E | E | E | E | E | E | B | B | B | B | B | B | 91710 | G | B | E | E | E | E | E | E | E |
| 3 | E | E | E | E | E | 147120 | (17)5120 | G | G | G | G | 347120 | G | 35120 | 32120 | 29120 | G | E | E | E | E | E | E | E |
| 4 | E | E | E | E | E | E | 707130 | G | 947140 | G | G | B | G | G | G | G | 217120 | E | E | C | C | E | E | 337110 |
| 5 | 327110 | 247110 | 317110 | E | 247110 | E | 60110 | G | G | G | G | 33110 | 947120 | G | 35110 | G | G | 217100 | 327100 | 347100 | E | E | E | E |
| 6 | E | E | E | 277120 | 337120 | E | E | G | G | G | G | G | G | G | 647100 | G | G | E | 197100 | 317100 | E | E | E | E |
| 7 | E | E | E | E | E | E | 56110 | E | G | G | G | G | G | G | G | G | G | 197120 | 167120 | 187130 | E | E | E | E |
| 8 | E | E | E | E | E | E | E | E | G | G | 377110 | G | G | G | G | G | G | E | E | E | E | E | 287130 | E |
| 9 | E | E | E | E | E | E | E | E | G | G | 387120 | 707110 | G | 18100 | 587130 | 617130 | 567130 | (90)5120 | 177120 | E | E | E | E | 197120 |
| 10 | E | E | E | E | E | E | 747110 | 36110 | 687120 | G | 347110 | G | G | 417100 | 227100 | 417130 | 477130 | 477110 | 287120 | 357110 | 437110 | E | E | 317110 |
| 11 | E | 247100 | E | 327100 | E | E | E | E | G | G | G | G | 437120 | G | G | G | G | E | E | E | 307110 | 327110 | E | E |
| 12 | E | E | E | 217110 | E | E | E | 707110 | G | G | G | G | G | G | G | G | B | E | E | E | E | E | E | E |
| 13 | E | E | E | E | E | E | E | 327120 | 307110 | G | 907100 | G | G | G | G | G | B | E | E | E | 317140 | E | E | E |
| 14 | E | E | E | E | 297130 | 707120 | E | G | 367110 | G | 947110 | G | G | G | G | G | G | 327100 | 187110 | E | E | E | E | E |
| 15 | E | E | E | E | E | 587120 | E | 567110 | 337100 | G | G | G | G | G | G | G | G | E | E | E | E | E | E | E |
| 16 | E | E | E | E | E | E | E | E | G | G | G | G | G | G | G | 307100 | G | E | E | E | E | E | E | E |
| 17 | E | E | E | 217110 | 477110 | 307110 | E | E | G | G | G | G | G | G | G | G | G | E | E | E | E | E | E | E |
| 18 | E | E | E | E | E | E | 627120 | E | 327120 | 267110 | G | G | G | G | G | 437120 | 247120 | 487110 | E | 547110 | 857110 | 407110 | 277110 | 237110 |
| 19 | 227110 | 217110 | E | E | E | E | 927120 | 707120 | G | G | G | 847120 | G | G | G | G | G | E | E | 337120 | 307110 | E | 247110 | E |
| 20 | E | E | E | 507140 | E | E | E | 317110 | 297120 | G | G | G | G | G | 347110 | 287110 | 397110 | E | E | 317110 | 257110 | 357110 | E | E |
| 21 | E | E | E | (23)510 | E | E | 377110 | 297120 | 227120 | 247110 | G | 427100 | G | G | G | G | 237140 | 337120 | 507120 | E | E | E | E | E* |
| 22 | E | E | E | E | E | E | 307110 | E | G | G | G | G | B | B | B | B | B | 217120 | 307120 | 327120 | 377110 | E | 327110 | E |
| 23 | E | E | E | E | E | E | 297110 | E | E | G | G | G | G | G | G | G | G | E | E | E | E | E | 347110 | E |
| 24 | E | E | E | E | E | E | 297110 | E | G | G | G | G | G | G | G | G | G | 18710308 | 357110 | E | E | E | E | E |
| 25 | 317110 | E | 267110 | E | E | E | 377120 | 277120 | 237110 | 377110 | 427120 | 357120 | 317130 | G | G | G | 377120 | 287110 | E | E | E | E | E | E |
| 26 | E | E | E | E | E | E | 287120 | 307120 | 327110 | 247110 | G | 297120 | 397110 | 377100 | 397100 | C | B | E | 317110 | 407110 | E | E | E | E |
| 27 | E | E | E | E | E | E | E | 267110 | G | G | G | G | 647130 | 617130 | 427120 | 447130 | G | E | E | E | E | E | E | E |
| 28 | 237100 | E | E | E | E | E | E | E | 237110 | G | G | G | B | B | B | B | G | E | E | E | E | E | E | E |
| 29 | E | E | E | E | E | E | E | E | G | 447110 | G | G | G | G | G | G | G | E | E | E | E | E | E | E |
| 30 | E | E | E | E | E | E | E | 377110 | 727110 | G | 527110 | 737120 | 707100 | 307100 | 267100 | G | E | 267110 | E | 647120 | 427120 | 867110 | 367110 | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| Count | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 |

Sweep L.O. Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

** MEDIAN fEs LESS THAN MEDIAN fOF, OR LESS THAN LOWER FREQUENCY LIMIT OF RECORDER

TABLE 81

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

(M1500)F2, (Unit) November, 1951
(Month)

Observed at Washington, D. C.

National Bureau of Standards
(Institution)

Scored by: Mc C. E. J. W.

Calculated by: Mc C. E. J. W.

Lat 38.7°N, Long 77.1°W

75°W Mean Time

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 2 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 3 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 4 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 5 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 6 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 7 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 8 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 10 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 11 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 12 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 13 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 14 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 15 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 16 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 17 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 18 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 19 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 20 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 21 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 22 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 23 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 24 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 25 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 26 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 27 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 28 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 29 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 30 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 31 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| Median | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| Count | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 82

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

(M3000)F₂, November, 1951
(Characteristics) (Unit) (Month)
Observed at Washington, D. C.

National Bureau of Standards
(Institution)
Scaled by: MC C. E. J. W.
Calculated by: MC C. W. J. C.

| Day | 75°W | | | | | | | | | | Mean Time | | | | | | | | | | MC C. | | | |
|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|-------------------|-------------------|-----------------|-------------------|-------------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 1 | 31 ^F | 32 ^S | 31 ^F | 32 ^F | 32 ^F | 32 ^F | 31 ^F | 34 ^F | 33 | 34 | 33 | 32 ^F | 31 | 31 | 31 | 30 | 32 | 32 ^S | 30 ^S | 30 ^S | 30 | 30 | 30 ^S | 29 ^S |
| 2 | (28) ^S | 28 ^F | 30 ^F | 29 ^F | 31 ^F | 30 ^F | 30 ^F | 33 | 32 | 32 | 31 | 30 | 30 | 30 | 31 | 31 ^S | 31 | 32 | 30 | 30 | 31 | 31 ^S | 30 | 27 ^S |
| 3 | 26 | 27 | 30 | (32) ^S | 34 | (33) ^S | 34 ^S | (32) ^S | 33 | 31 ^V | 31 ^H | 31 | 31 | 31 | (32) ^V | 33 | 32 | 31 | 30 | 29 | C | 31 | 27 ^V | (27) ^S |
| 4 | 27 ^S | (30) ^S | (29) ^S | (29) ^S | (28) ^F | (33) ^F | 33 | 33 | 34 | 34 | 33 | 33 | 30 | 31 | 31 | 32 | 33 | 32 | 29 | C | 31 | 30 | (30) ^S | |
| 5 | (29) ^F | 29 | (29) ^S | (28) ^F | 29 | 28 | 30 | 31 | 34 | 34 | 33 | (31) ^H | (32) ^V | 31 | 31 | 31 | 33 | 33 | 30 | 31 | 30 | 30 | 28 | |
| 6 | 28 | 29 ^F | 27 ^F | 29 ^F | 30 ^F | 30 ^F | 30 ^S | (33) ^S | 34 | 32 | 32 | 31 | 30 | 31 | 31 | 31 | 32 | 32 ^S | 31 | 30 | (31) ^S | 30 ^S | 26 | (27) ^S |
| 7 | 27 | 29 | (29) ^S | 31 ^F | (30) ^F | (30) ^S | (28) ^S | 33 ^F | 34 | 33 | 33 | 31 | 31 | 31 | 31 | 32 | 31 | 32 | 31 ^S | (32) ^V | (30) ^S | 28 ^S | 30 | 29 |
| 8 | 30 | 30 ^F | 31 | 30 | 30 | 30 ^S | 30 ^S | 32 | 35 | (32) ^V | 33 | 32 ^H | 32 | 32 | 32 | 32 | 33 | 31 | 32 | 31 | 30 | 30 ^S | 31 | 28 |
| 9 | 26 | 28 | 30 ^F | 32 ^F | (29) ^S | 31 ^F | 32 ^F | 32 | 35 | 32 ^H | (31) ^V | 29 | 30 | 30 | 31 | (31) ^S | 32 ^S | 31 | 29 | 30 ^S | 29 | 28 | 28 ^S | 30 ^S |
| 10 | (30) ^S | 30 | 27 ^F | 28 ^F | 29 ^F | 30 ^F | 31 ^F | 34 ^F | 34 | 34 | 32 | 32 | 32 | 31 | 33 | 32 ^H | 33 | 32 ^S | 31 | 31 ^S | 31 | 30 | 30 ^S | 30 |
| 11 | 29 | 29 | 28 ^F | 30 | (32) ^F | 30 ^F | 29 | 32 | 34 | 34 | 31 | 32 | 30 | 31 | 30 | 31 | 33 | 32 | 29 | 30 | 30 | 28 ^S | 28 ^S | (29) ^S |
| 12 | 24 ^S | 30 ^S | 32 ^S | 30 | (29) ^V | (25) ^F | (28) ^K | (30) ^K | 31 ^K | 31 ^K | 30 ^K | 29 ^K | 27 ^K | 30 ^K | 32 ^K | 32 ^K | 33 ^K | 32 ^S | (30) ^K | (29) ^K | 29 ^K | 29 ^K | 30 ^S | (28) ^K |
| 13 | 29 ^K | 27 ^K | 28 ^K | 28 ^K | 26 ^K | F ^K | (25) ^K | 30 ^K | 32 ^K | 30 ^K | 28 ^K | 28 ^K | 27 ^K | 28 ^K | 29 ^K | 30 ^K | 30 ^K | (29) ^K | (28) ^K | 27 ^K | 27 ^K | 27 ^K | 26 ^K | 28 ^K |
| 14 | (30) ^S | 28 ^K | 30 ^S | 31 ^K | 27 ^K | 27 ^K | (29) ^S | 33 ^K | 35 ^K | 33 ^K | 31 ^K | 30 | 32 | 31 | 32 | 32 | 31 | (32) ^S | 30 ^S | 30 ^S | 32 ^F | 30 ^F | (30) ^P | |
| 15 | 27 | 29 ^S | 29 | (30) ^F | (32) ^F | F ^S | (34) ^S | 34 | 34 | 34 | 30 | 32 | 32 | 31 | 31 | 31 | 34 | 32 | 31 ^S | 31 | 32 ^S | 29 | (30) ^S | 28 |
| 16 | 30 | 29 | 29 | 31 | 31 | 31 | (31) ^S | (32) ^S | 34 | 32 | 32 | 33 | 33 | 32 ^H | 33 | 34 | 34 | 32 | 31 | 31 | 32 | 30 | 29 | 29 |
| 17 | 28 | 28 | 28 ^F | 29 ^F | (28) ^S | (30) ^S | 30 | 32 | 34 | 34 | 33 | 31 | 31 | 33 | 32 | 31 | 31 | 30 | 30 ^S | 30 | 32 ^S | 30 | 30 ^F | 30 ^F |
| 18 | 28 | 29 ^F | 30 ^F | 31 ^F | 31 ^F | 30 ^F | 28 | 32 | 34 | 34 | 33 | 34 | 32 | 34 | 33 | 32 | 32 | 32 | 32 ^S | 32 | (30) ^A | 31 | 29 ^F | 24 ^F |
| 19 | 29 ^F | 28 ^F | 30 ^F | 31 ^F | 31 ^S | 31 ^Z | 31 | (33) ^S | 34 | 34 | 32 | 32 ^H | 32 | 31 | 32 | 32 | 33 | 32 | (29) ^S | 30 | (30) ^S | 29 ^S | 29 | 30 |
| 20 | 29 | 30 | 29 | 30 ^S | (28) ^S | 30 | 30 ^F | 32 ^F | 34 | 34 | 32 | 33 | 32 | 31 | 32 | 32 ^S | 33 ^F | 34 ^S | 30 | 31 | (31) ^S | 30 ^S | (31) ^S | 30 ^S |
| 21 | 28 ^S | (28) ^S | 29 | 28 | 28 | 28 | 28 ^K | 32 ^K | 32 ^K | 31 ^K | 31 ^K | 32 ^K | 33 ^K | 32 ^K | 32 ^K | 32 ^K | 34 ^K | 31 ^K | (31) ^S | 30 ^S | 29 | 30 | (29) ^F | (30) ^F |
| 22 | (31) ^T | 30 ^S | (29) ^F | 28 | 29 | 30 | 30 ^S | 32 | 34 | 33 | 33 | 32 | 32 | 32 | 32 | 32 ^S | 32 ^S | 31 | 30 | 30 ^S | 28 | 31 | 32 ^S | 28 |
| 23 | (31) ^T | 31 | 28 | 29 ^S | 30 | 30 | 30 ^S | 33 | 36 | 33 | 32 | 32 | 31 | 31 | 32 | 32 | 31 ^F | 31 | (32) ^S | 32 | (32) ^S | 30 | 27 | |
| 24 | 24 ^S | (28) ^S | 31 ^F | (32) ^S | 32 ^S | 31 ^F | 31 ^F | 32 | 35 | 35 | 33 | 31 | 31 | 32 | 33 | 32 | 34 ^S | 35 ^S | 34 ^S | 31 | (30) ^S | (29) ^S | (30) ^S | 20 ^S |
| 25 | 29 | 24 ^S | 30 ^S | (30) ^S | (30) ^S | 29 ^F | 29 ^F | 31 | 32 | 34 | 33 | 31 | 31 | 32 | 32 | 32 | 32 | 33 ^S | 31 | 30 ^S | 30 | 30 | (31) ^S | 31 |
| 26 | (29) ^F | (29) ^F | 29 ^F | 29 ^F | (29) ^S | 29 ^F | 31 ^F | 31 ^S | 34 | 33 | 32 | 31 | (32) ^S | 33 | (32) ^S | 32 | 33 | 31 | 32 | 31 | 32 | (32) ^S | 29 | 20 ^F |
| 27 | 28 | 30 | 29 | 31 | 32 | 30 ^F | 29 ^S | 33 ^F | 35 | 32 ^S | 34 | 33 | 32 | 34 | 33 | 32 | 32 | 31 | 31 | 30 | 31 ^S | 29 | (31) ^S | |
| 28 | 30 ^S | 30 | 31 | 32 ^F | 29 ^V | 29 ^F | 29 | 33 | 36 | 34 | 32 | 32 | 32 | 32 | 31 | 32 | 31 | 31 | 31 | 29 | 30 | 31 ^S | 29 | 31 |
| 29 | 31 | (30) ^S | 29 | 29 ^S | 27 ^F | 29 ^F | 30 ^F | (31) ^S | 34 | 34 | 30 | 32 | 32 | 32 | 32 | 31 | 31 | 31 | (31) ^S | 30 | 31 ^S | (30) ^S | 24 ^F | |
| 30 | 30 ^V | 30 ^F | 30 ^F | 29 ^F | 27 ^F | 30 | 31 | 32 | 34 | 35 | 31 | 32 | 31 | 31 | 32 | 32 | 33 | (32) ^S | 30 ^S | 31 | 30 | 30 | 24 | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | 29 | 29 | 29 | 30 | 30 | 30 | 30 | 32 | 34 | 34 | 32 | 32 | 31 | 31 | 32 | 32 | 32 | 32 | 30 | 30 | 30 | 30 | 30 | 27 |
| Count | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

Sweep 1.0 Mc to 2.5 Mc in 0.25 min

Manual ☐ Automatic ☒

TABLE 83

Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

IONOSPHERIC DATA

(M3000)F₁, (Unit) November, 1951
(Characteristic) Washington, D. C.

Observed at
Lat. 38.7°N, Long. 77.1°W

National Bureau of Standards
(Institution)
Scored by: Mc C. E. J. W.
Calculated by: Mc C. W. J. C.

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|-----------------|-------------------|-----------------|-------------------|-------------------|-------------------|-----------------|-----------------|----------------|----|----|----|----|----|----|----|
| 1 | | | | | | | | | Q | L | L | A | L | L | L | L | Q | | | | | | | |
| 2 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 3 | | | | | | | | | L | L | L | L | L | L | L | 39 | Q | | | | | | | |
| 4 | | | | | | | | | Q | L | L | B | L | L | L | L | Q | | | | | | | |
| 5 | | | | | | | | | L | L | 39 | 38 | L | L | L | L | Q | | | | | | | |
| 6 | | | | | | | | | Q | L | L | L | L | L | L | L | Q | | | | | | | |
| 7 | | | | | | | | | Q | Q | L | L | L | L | 41 | L | Q | | | | | | | |
| 8 | | | | | | | | | Q | L | L | L | L | L | 39 | L | Q | | | | | | | |
| 9 | | | | | | | | | Q | L | A | A | A | L | L | A | Q | | | | | | | |
| 10 | | | | | | | | | Q | Q | Q | L | L | L | L | Q | Q | | | | | | | |
| 11 | | | | | | | | | L | 40 | L | L | L | L | L | L | Q | | | | | | | |
| 12 | | | | | | | | | 38 ^K | 35 ^K | 34 ^K | 35 ^K | (35) ^K | 37 ^K | L ^K | L ^K | | | | | | | | |
| 13 | | | | | | | | | L ^K | 34 ^K | 33 ^K | L ^K | 33 ^K | 32 ^K | 35 ^K | L ^K | | | | | | | | |
| 14 | | | | | | | | | | 40 ^K | 41 ^K | L | L | L | L | L | L | | | | | | | |
| 15 | | | | | | | | | L | L | 39 | L | L | L | L | L | L | | | | | | | |
| 16 | | | | | | | | | L | L | L | L | 37 | L | 41 ^H | Q | | | | | | | | |
| 17 | | | | | | | | | | L | L | L | L | (37) ^L | 40 | 40 ^H | L | | | | | | | |
| 18 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 19 | | | | | | | | | | L | L | L | L | L | L | L | | | | | | | | |
| 20 | | | | | | | | | L | (40) ^L | L | L | L | L | L | L | L | | | | | | | |
| 21 | | | | | | | | | L ^K | L ^K | L ^K | (40) ^K | L ^K | L ^K | L ^K | L ^K | L ^K | | | | | | | |
| 22 | | | | | | | | | L | L | L | L | L | L | B | L | L | | | | | | | |
| 23 | | | | | | | | | | L | L | B | L | L | L | L | L | | | | | | | |
| 24 | | | | | | | | | | L | L | L | L | L | L | L | L | | | | | | | |
| 25 | | | | | | | | | | L | L | (40) ^L | L | L | L | L | L | | | | | | | |
| 26 | | | | | | | | | | L | L | L | L | L | L | L | Q | | | | | | | |
| 27 | | | | | | | | | | L | L | L | A | A | Q | | | | | | | | | |
| 28 | | | | | | | | | | L | L | L | L | L | L | L | L | | | | | | | |
| 29 | | | | | | | | | | Q | Q | L | L | L | L | L | L | | | | | | | |
| 30 | | | | | | | | | | Q | A | A | L | L | L | L | Q | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | -- | -- | 3.9 | -- | -- | -- | 3.9 | -- | -- | | | | | | | |
| Count | | | | | | | | | 4 | 4 | 6 | 4 | 3 | 4 | 5 | 2 | | | | | | | | |

Sweep 1.0 Mc to 25.0 Mc in 0.25 min
Manual ☐ Automatic ☒

TABLE 84
Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

National Bureau of Standards
(Institution)
Scaled by: Mc C. E. J. W.
Calculated by: Mc C. W. J. C.

(M1500)E, (Unit) November, 1951
(Characteristic) Washington, D. C.
Observed at
Lat. 38.7°N, Long. 77.1°W

IONOSPHERIC DATA

| 75°W | | | | | | | | | | | | | | | | | | | | | | | | | | Mean Time | | | | | | | | | | Calculated by: Mc C. , W.J.C. | | | | | | | | | |
|---------------------------|----|----|----|----|----|----|-----------------|-------------------|-------------------|-------------------|-------------------|-----------------|-----------------|-------------------|-------------------|-------------------|-----------------|----|----|----|----|----|----|----|--|-----------|--|--|--|--|--|--|--|--|--|-------------------------------|--|--|--|--|--|--|--|--|--|
| Lat. 38.7°N , Long 77.1°W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | 38 ^H | B | A | A | B | 40 | 40 | A | 42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | B | B | B | B | B | B | 41 | 40 | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | 41 | 39 | 40 | 40 | (40) ^A | 42 | A | (43) ^A | 44 | (35) ^P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | 41 | 41 | 42 | 42 | B | 40 | 41 | 41 | 40 | 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | 42 ^H | 42 | (38) ^P | 40 | (42) ^A | A | 41 | A | 42 | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | 38 | (38) ^H | 40 ^H | 40 | 38 | 40 | 41 | 41 | 40 | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | 40 | (41) ^P | (42) ^H | 40 | 39 | 41 | 43 | 42 | 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | 40 | 42 | A | 40 | 41 | 41 ^H | 43 | 40 | 39 ^H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | 41 | 39 ^H | 39 | 37 | 40 | 40 | 39 | 40 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | 42 | (41) ^P | (38) ^A | 40 | 40 | 40 | 40 | 41 | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | 40 | 39 ^H | 39 | 40 | A | 41 | 40 | 42 | 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | 40 ^K | 40 ^K | 39 ^K | 40 ^K | 40 ^K | 41 ^K | 41 ^K | 43 ^K | 42 ^K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | 42 ^K | 39 ^K | (40) ^K | 41 ^K | 40 ^K | B ^K | 42 ^K | (41) ^B | B ^K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | 43 ^K | A ^K | 41 ^K | 41 ^K | 40 | 41 | 42 | 42 | 42 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | 43 | (43) ^H | 38 | 40 ^H | 41 | 41 ^H | 40 | 41 | 41 | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | | | | 37 ^H | 39 | 41 | 41 | 41 | 42 ^H | 42 | 40 ^H | 42 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | 32 | 35 ^H | 38 | 39 ^H | 38 | 39 | 39 ^H | 41 ^H | 41 | 41 ^H | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | | | | A | 37 | 40 ^H | 39 | 39 | 39 ^H | 40 | 41 | 41 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | | | | 38 | 40 | 40 | 41 | 41 | 41 | 41 | 42 | 41 | 40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | 38 | 41 | 41 | 42 | 42 | 42 | 42 | A | (46) ^A | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | (38) ^P | A ^K | 39 ^K | A ^K | 40 ^K | 40 ^K | B ^K | (39) ^K | 42 ^K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | 39 | (39) ^P | (39) ^P | B | B | B | B | B | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | | | | 39 ^H | 40 | 41 | 41 ^B | 41 | 42 | 42 | 41 | 40 ^B | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | | | | | | | A | A | A | A | A | A | 41 | 41 | 42 | 43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | | | | | | | | 37 | 40 | 41 | 41 | A | A | A | A | C | B | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | | | | | | | | 38 ^H | 40 | 41 | 41 | 41 | 41 | 40 | 41 | 40 | 35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | A | 41 | 40 | 40 | B | B | B | (40) ^B | 42 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | 38 | A | 41 | 40 | 40 ^H | 42 | 42 ^H | 41 | 40 ^H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | | | | | | | | 42 ^H | 40 | A | A | A | A | (43) ^A | 40 | 39 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | 4.2 | 3.9 | 4.0 | 4.0 | 4.0 | 4.0 | 4.1 | 4.1 | 4.1 | 4.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Count | | | | | | | 6 | 4.3 | 2.9 | 2.5 | 2.5 | 2.3 | 2.1 | 2.4 | 2.4 | 2.7 | 2.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 1.0 Mc to 25.0 Mc in 0.25 min

Manual ☐ Automatic ☒

Table 85

Ionospheric Storminess at Washington, D. C.November 1951

| Day | Ionospheric character* | | Principal storms | | Geomagnetic character** | |
|-----|------------------------|-----------|------------------|---------|-------------------------|-----------|
| | 00-12 GCT | 12-24 GCT | Beginning GCT | End GCT | 00-12 GCT | 12-24 GCT |
| 1 | 2 | 1 | | | 1 | 2 |
| 2 | 0 | 1 | | | 3 | 2 |
| 3 | 1 | 2 | | | 4 | 3 |
| 4 | 1 | 2 | | | 4 | 3 |
| 5 | 1 | 2 | | | 3 | 3 |
| 6 | 2 | 1 | | | 3 | 3 |
| 7 | 2 | 2 | | | 4 | 3 |
| 8 | 2 | 1 | | | 2 | 2 |
| 9 | 2 | 3 | | | 3 | 2 |
| 10 | 1 | 2 | | | 1 | 1 |
| 11 | 2 | 2 | | | 0 | 2 |
| 12 | 3 | 5 | 1100 | ---- | 4 | 2 |
| 13 | 4 | 4 | ---- | ---- | 4 | 4 |
| 14 | 4 | 3 | ---- | 1600 | 4 | 4 |
| 15 | 3 | 2 | | | 4 | 3 |
| 16 | 2 | 2 | | | 3 | 2 |
| 17 | 3 | 3 | | | 2 | 4 |
| 18 | 3 | 2 | | | 3 | 1 |
| 19 | 2 | 2 | | | 2 | 2 |
| 20 | 2 | 1 | | | 2 | 3 |
| 21 | 1 | 4 | 1100 | 2400 | 2 | 2 |
| 22 | 1 | 3 | | | 3 | 3 |
| 23 | 2 | 2 | | | 3 | 3 |
| 24 | 2 | 1 | | | 2 | 3 |
| 25 | 1 | 1 | | | 3 | 3 |
| 26 | 3 | 1 | | | 1 | 3 |
| 27 | 2 | 2 | | | 1 | 2 |
| 28 | 1 | 1 | | | 2 | 4 |
| 29 | 1 | 2 | | | 4 | 3 |
| 30 | 1 | 2 | | | 3 | 2 |

*Ionosphere character figure (I-figure) for ionospheric storminess at Washington, D. C., during 12-hour period, on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

**Average for 12 hours of Cheltenham, Maryland, geomagnetic K-figures on an arbitrary scale of 0 to 9, 9 representing the greatest disturbance.

----Dashes indicate continuing storm.

Table 86

Provisional Radio Propagation Quality Figures
(Including Comparisons with CRPL Warnings and Forecasts)
October 1951

| Day | North Atlantic quality figure | | SRPL* Warning | | CRPL** Forecasts (J-reports) | | North*** Pacific quality figure | | Geo-mag-netic K _{Ch} | |
|--------|-------------------------------|-----|---------------|------|------------------------------|------|---------------------------------|-----|-------------------------------|-----|
| | Half day GCT | | Half day GCT | | | | Half day GCT | | Half day GCT | |
| | (1) | (2) | (1) | (2) | | | (1) | (2) | (1) | (2) |
| 1 | 6 | 6 | | | | | 5 | 6 | 2 | 2 |
| 2 | 5 | 6 | | | | | 7 | 6 | 3 | 2 |
| 3 | 6 | 6 | | | | | 7 | 7 | 1 | 2 |
| 4 | 7 | 7 | | | | | 8 | 7 | 0 | 1 |
| 5 | 7 | 7 | | | | | 8 | 6 | 1 | 1 |
| 6 | 7 | 7 | | | | | 7 | 6 | 0 | 0 |
| 7 | 7 | 5 | | | | | 7 | 5 | 2 | (4) |
| 8 | (3) | (4) | W | W | | | 5 | (4) | (5) | (4) |
| 9 | (4) | 5 | W | (W) | | | 7 | 6 | (4) | 3 |
| 10 | 5 | (4) | W | W | X | | (4) | 5 | (5) | (4) |
| 11 | (4) | 5 | W | U | X | | 5 | 5 | (4) | 2 |
| 12 | 5 | 6 | U | | X | | 5 | 6 | 3 | 2 |
| 13 | 6 | 6 | | | | | 6 | 7 | (4) | 3 |
| 14 | 5 | 5 | W | | | | 7 | 6 | 3 | 3 |
| 15 | 5 | 6 | | | X | | 7 | 7 | 3 | 2 |
| 16 | 5 | 5 | | | X | | 8 | -7 | 3 | 3 |
| 17 | (3) | (3) | W | W | X | | (4) | 5 | (5) | (5) |
| 18 | (3) | (4) | W | W | X | | (4) | 7 | (5) | (4) |
| 19 | 5 | (4) | W | W | X | | (4) | 5 | (4) | (4) |
| 20 | (4) | 5 | W | U | X | | 6 | 6 | (4) | 2 |
| 21 | (4) | 5 | U | | X | | 7 | 7 | (4) | 2 |
| 22 | (4) | (3) | | | | | 7 | 6 | 3 | 3 |
| 23 | 5 | 5 | | | | | 7 | 6 | 3 | 2 |
| 24 | 6 | 6 | | | | | 6 | 8 | 2 | 1 |
| 25 | 6 | 6 | | | | | 8 | 7 | 1 | 1 |
| 26 | 6 | 7 | | | | | 7 | 6 | 2 | 3 |
| 27 | 6 | 6 | | | | | 7 | 6 | 2 | 1 |
| 28 | 5 | (3) | | W | | | 7 | 5 | 3 | (6) |
| 29 | (4) | 6 | W | | | | (4) | 6 | 2 | 2 |
| 30 | 5 | 6 | | | | | 7 | 6 | 3 | 1 |
| 31 | 5 | 6 | | | | | 6 | 5 | 0 | 1 |
| Score: | | | Warning | | Forecast | | | | | |
| | | | N.A. | N.P. | N.A. | N.P. | | | | |
| H | | | 17 | 8 | 9 | 4 | | | | |
| (M) | | | 0 | 0 | 0 | 0 | | | | |
| M | | | 2 | 0 | 7 | 2 | | | | |
| G | | | 39 | 41 | 35 | 40 | | | | |
| O | | | 4 | 13 | 11 | 16 | | | | |

Scales:

Quality Figures

- (1) - Useless
(2) - Very poor
(3) - Poor
(4) - Poor to fair
5 - Fair
6 - Fair to good
7 - Good
8 - Very good
9 - Excellent

Geomagnetic K_{Ch} - 0 to 9,
9 representing the greatest
disturbance; K_{Ch} ≥ 4 indicates
significant disturbance,
enclosed in () for emphasis.

Symbols:

W Disturbed conditions
expected

U Unstable conditions
expected

N No disturbance expected

X Probable disturbed date

Scoring:

H Storm (Q < 4) hit

(M) Storm severer than
predicted

M Storm missed

G Good day forecast

O Overwarning

Scoring by half day according
to following table:

| | | Quality Figure | | | |
|--|--|----------------|---|---|-----|
| | | ≤ 3 | 4 | 5 | ≥ 6 |

W H H O O

U (M) H H O

N M M G G

X H H O O

*Broadcast on WWV, Washington, D.C. Times of warnings recorded to nearest half day as broadcast.
() broadcast for one-quarter day. Blanks signify N.

**In addition to dates marked X, the following were designated as probable disturbed days on forecast more than three or four days in advance of said dates: October 8, 9, 13, 14, 22, 23, 24.

***Low weight.

Table 87b

Coronal observations at Climax, Colorado (5303A), west limb

| Date GCT | Degrees south of the solar equator | | | | | | | | | | | | | | | | | | | 0° | Degrees north of the solar equator | | | | | | | | | | | | | | | | | | | |
|-------------|------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|--|
| | 90 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | 5 | 5 | | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | | | |
| 1951 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nov. | 2.8 | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 8 | 5 | 3 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | |
| | 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 3 | 3 | 8 | 10 | 8 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | |
| | 5.9 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | 5 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| | 6.7 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 5 | 12 | 8 | 5 | 5 | 3 | 3 | 8 | 5 | 5 | 5 | 5 | 5 | 3 | 3 | 2 | 2 | 3 | 3 | 3 | - | - | - | - | |
| | 7.6 | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 8 | 15 | 20 | 15 | 15 | 12 | 10 | 12 | 12 | 10 | 8 | 8 | 10 | 3 | 5 | 3 | 3 | 5 | 5 | - | - | - | - | | |
| | 9.6a | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | | |
| | 10.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | | |
| | 17.7 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 10 | 14 | 14 | 15 | 20 | 20 | 10 | 10 | 5 | 5 | 5 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | |
| | 18.7 | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 8 | 13 | 12 | 15 | 15 | 15 | 10 | 12 | 5 | 5 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | |
| | 19.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 5 | 5 | 10 | 15 | 15 | 10 | 12 | 10 | 10 | 5 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | |
| | 20.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 8 | 10 | 12 | 12 | 10 | 8 | 5 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | |
| | 21.7 | X | X | X | X | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 5 | 8 | 5 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| | 25.9 | - | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | |
| | 26.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 5 | 8 | 5 | 10 | 5 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | |
| | 28.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 8 | 10 | 15 | 10 | 12 | 8 | 4 | 5 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | - | - | - | |
| | 29.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 12 | 15 | 13 | 15 | 15 | 12 | 5 | 3 | 3 | 3 | 2 | 3 | 3 | - | - | - | - | - | - | |
| | 30.7a | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 5 | 5 | 8 | 10 | 8 | 10 | 12 | 8 | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | |

Table 88b

Coronal observations at Climax, Colorado (6374A), west limb

[illegible]

Table 89b

Coronal observations at Climax, Colorado (6702A), west limb

| Date GCT | Degrees south of the solar equator | | | | | | | | | | | | | | | | | 0° | Degrees north of the solar equator | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------------------------------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| | 90 | 85 | 80 | 75 | 70 | 65 | 60 | 55 | 50 | 45 | 40 | 35 | 30 | 25 | 20 | 15 | 10 | | 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | | | |
| 1951 Nov. 2.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | |
| 3.8 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | | |
| 5.9 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | |
| 6.7 | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | | | |
| 7.6 | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 5 | 8 | 5 | 5 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | | |
| 9.6a | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | | |
| 10.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 17.7 | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 3 | 3 | 3 | 5 | 3 | 3 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 18.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | | |
| 19.7 | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 20.7 | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | |
| 21.7 | X | X | X | X | - | - | X | X | X | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | X | X | X | X | X | X | X | X | X | X | X | - | - | - | - | |
| 25.9 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | |
| 26.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | - | - | - | |
| 28.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - | - | - | |
| 29.7 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - |
| 30.7a | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | - | - | - | - | - |

Note: Yellow line (5694A): Nov. 7.6 at S10 west limb, intensity 5.

Table 90
Zürich Provisional Relative Sunspot Numbers
November 1951

| Date | R _Z * | Date | R _Z * |
|------|------------------|-------|------------------|
| 1 | 45 | 17 | 46 |
| 2 | 57 | 18 | 44 |
| 3 | 46 | 19 | 42 |
| 4 | 53 | 20 | 43 |
| 5 | 61 | 21 | 45 |
| 6 | 56 | 22 | 52 |
| 7 | 62 | 23 | 54 |
| 8 | 62 | 24 | 54 |
| 9 | 61 | 25 | 54 |
| 10 | 62 | 26 | 60 |
| 11 | 76 | 27 | 75 |
| 12 | 65 | 28 | 59 |
| 13 | 41 | 29 | 55 |
| 14 | 40 | 30 | 31 |
| 15 | 40 | | |
| 16 | 50 | Mean: | 53.0 |

* Dependent on observations at Zürich Observatory and its stations at Locarno and Arosa.

Table 91
American Relative Sunspot Numbers
October 1951

| Date | R_A , * | Date | R_A , * |
|------|-----------|------------|-----------|
| 1 | 44 | 17 | 62 |
| 2 | 50 | 18 | 58 |
| 3 | 46 | 19 | 64 |
| 4 | 41 | 20 | 45 |
| 5 | 25 | 21 | 32 |
| 6 | 20 | 22 | 29 |
| 7 | 13 | 23 | 15 |
| 8 | 36 | 24 | 21 |
| 9 | 61 | 25 | 28 |
| 10 | 77 | 26 | 45 |
| 11 | 94 | 27 | 56 |
| 12 | 88 | 28 | 71 |
| 13 | 65 | 29 | 77 |
| 14 | 56 | 30 | 75 |
| 15 | 55 | 31 | 64 |
| 16 | 61 | Mean: 50.8 | |

*Combination of reports from 22 observers; see page 9.

Table 92

Solar Flares, October 1951

| Observatory | Date | Time Observed | | Duration (Min) | Area (Mill) (of) (Visible) (Hemisphere) | Position | | Time of Maximum (GCT) | Int. of Maximum | Relative Area of Maximum (Tenths) | Importance | SID Observed |
|-------------|--------|-----------------|--------------|----------------|---|----------------|----------------------|-----------------------|-----------------|-----------------------------------|------------|--------------|
| | | Beginning (GCT) | Ending (GCT) | | | Latitude (Deg) | Longitude Diff (Deg) | | | | | |
| Sac. Peak | Oct. 8 | 1440 | 1550 | 70 | 34 | S15 | E88 | 1506 | 14 | 5 | 1 | |
| " | 8 | 2300 | 2320A | App. 25 | 57 | S15 | E88 | 2303 | 12 | 3 | 1 | |
| " | 9 | 1800 | 1855 | 55 | 80 | S16 | E66 | 1845 | 10 | 6 | 1 | |
| " | 13 | 1655 | 1733 | 38 | 34 | S12 | E11 | 1705 | 13 | 8 | 1 | |
| McMath | 13 | 1700 | | | | S12 | E14 | -- | | | | |
| Sac. Peak | 16 | 1935 | 1954 | 19 | 73 | S14 | W36 | 1940 | 9 | 8 | 1 | |
| " | 16 | 2000 | 2020A | App. 25 | 51 | S14 | W36 | 2004 | 8 | 6 | 1 | |
| McMath | 17 | 1740 | | | | S17 | W46 | -- | | | | |
| Sac. Peak | 17 | 1745 | 1840 | 55 | 112 | S10 | W46 | 1757 | 13 | 1 | 1 | |
| " | 18 | 1505 | 1605 | 60 | 39 | S16 | W66 | 1545 | 9 | 3 | 1 | |
| Wendelst. | 19 | 1023B | 1049 | App. 30 | 97 | N11 | W35 | 1028 | | | | |
| Schauins. | 19 | 1050 | | | | N10 | W40 | -- | | | | |
| Sac. Peak | 19 | 1435 | 1515 | 40 | 107 | S20 | W88 | 1451 | 12 | 1 | 1 | |
| " | 19 | 1501 | 1525 | 24 | 12 | S20 | W88 | 1511 | 10 | 6 | 1 | |
| " | 19 | 1625B | 1635 | App. 15 | 68 | S15 | W88 | 1625B | 10 | 2 | 1 | |
| Wendelst. | 28 | 0726B | 0744A | App. 20 | 339 | N08 | E57 | -- | | | | |
| Sac. Peak | 29 | 1525 | 1550 | 25 | 33 | N10 | W49 | 1533 | 16 | 4 | 1 | |
| " | 29 | 1723 | 1748 | 25 | 100 | S10 | E39 | 1724 | 19 | 8 | 1 | |

Sac. Peak = Sacramento Peak

Wendelst. = Wendelstein

Schausins. = Schausinsland

B Flare started before given time

A Flare ended after given time

Q Time reported as questionable

Indices of Geomagnetic Activity for October 1951

Preliminary values of mean K-indices, Kw, from 38 observatories;
Preliminary values of international character-figures, C;
Geomagnetic planetary three-hour-range indices, Kp;
Magnetically selected quiet and disturbed days

| Gr. Day 1951 | Values Kw | | | | | | | | Sum | C | Values Kp | | | | Sum | Final Sel. Days |
|--------------------|-----------|------|------|------|------|------|-----|-----|------|-----|-------------------|--|-----|---------------|-----|-----------------------|
| 1 | 2.1 | 1.2 | 1.2 | 1.4 | 1.0 | 2.4 | 2.3 | 2.1 | 13.7 | 0.3 | 2o1+1+1+ 1-3-3-2o | | 14o | Five Quiet | | |
| 2 | 3.2 | 3.2 | 3.0 | 2.2 | 1.7 | 1.9 | 1.6 | 3.1 | 19.9 | 0.7 | 4-4-4-3- 2-2o2-4- | | 23- | | | |
| 3 | 1.3 | 1.1 | 0.8 | 2.1 | 2.4 | 1.1 | 2.6 | 2.3 | 13.7 | 0.4 | 2-2-1-2+ 2+1o2+2+ | | 14+ | | | |
| 4 | 0.7 | 0.6 | 0.4 | 1.0 | 1.0 | 1.5 | 2.2 | 1.9 | 9.3 | 0.2 | 1-0+0+1- 0+1+2o2- | | 7+ | | | |
| 5 | 2.4 | 0.6 | 0.8 | 0.6 | 0.8 | 1.0 | 1.9 | 1.9 | 10.0 | 0.2 | 3o0+1-0+ 0+1-2-2o | | 9o | | | |
| 6 | 1.5 | 0.8 | 0.6 | 0.8 | 0.4 | 0.2 | 0.3 | 0.6 | 5.2 | 0.0 | 2-1-1-1- 0o0o0o0+ | | 4o | 24 | | |
| 7 | 1.2 | 1.4 | 2.2 | 3.0 | 3.8 | 4.6 | 5.7 | 4.8 | 26.7 | 1.5 | 1+2o3-3+ 4+5+7-5+ | | 31o | 25 | | |
| 8 | 5.1 | 4.8 | 5.1 | 4.7 | 4.6 | 4.1 | 3.7 | 4.2 | 36.3 | 1.6 | 6o6-6+6o 5+5o4o4o | | 42+ | 31 | | |
| 9 | 3.6 | 3.1 | 3.0 | 3.9 | 4.3 | 3.2 | 2.9 | 4.6 | 28.6 | 1.2 | 4o4o4-5- 5o3+3o5+ | | 33o | | | |
| 10 | 3.9 | 3.7 | 3.1 | 4.4 | 3.6 | 4.8 | 4.2 | 3.9 | 31.6 | 1.4 | 5o4+4o5+ 4o6-5-5- | | 38- | | | |
| 11 | 3.6 | 2.5 | 3.3 | 3.6 | 3.1 | 3.1 | 2.5 | 0.9 | 22.6 | 0.9 | 4+3+4o4o 3+3+2+1- | | 25+ | Five Dist. | | |
| 12 | 1.5 | 2.3 | 2.1 | 3.6 | 3.3 | 2.7 | 2.2 | 2.0 | 19.7 | 0.7 | 2o3o3-4o 4-3-2+2o | | 22+ | | | |
| 13 | 2.5 | 2.9 | 3.2 | 4.3 | 3.0 | 2.1 | 3.6 | 4.8 | 26.4 | 1.2 | 3o4-3+5o 3o2+4o6- | | 3Co | | | |
| 14 | 4.1 | 2.3 | 2.7 | 3.0 | 1.4 | 3.3 | 4.4 | 3.4 | 24.6 | 1.0 | 5-3-3o3+ 1+3+5+4+ | | 28o | | | |
| 15 | 2.6 | 1.9 | 2.2 | 2.1 | 1.4 | 1.3 | 3.1 | 3.6 | 18.2 | 0.7 | 3+3-3-2+ 1+1+3-4o | | 20+ | | | |
| 16 | 3.0 | 3.2 | 2.7 | 3.3 | 2.6 | 3.2 | 3.7 | 4.3 | 26.0 | 1.0 | 3o4o3+4- 2+3+4o5- | | 28+ | 17. | | |
| 17 | 5.0 | 5.2 | 4.7 | 4.9 | 4.4 | 5.8 | 5.5 | 4.7 | 40.2 | 1.7 | 6o6+6+6o 6-7o7-6- | | 50- | 18 | | |
| 18 | 3.9 | 4.1 | 4.7 | 4.2 | 3.9 | 4.9 | 4.0 | 4.0 | 33.7 | 1.4 | 4+5+6o5+ 4+5+4+4+ | | 39+ | 19 | | |
| 19 | 4.8 | 4.4 | 3.8 | 3.5 | 3.8 | 4.1 | 4.7 | 4.9 | 34.0 | 1.5 | 6o5+5o4+ 4+4+5+6- | | 40+ | 28 | | |
| 20 | 4.9 | 2.6 | 3.4 | 3.3 | 3.0 | 2.2 | 4.0 | 2.1 | 25.5 | 1.0 | 6o3+4+4- 3+2o4o2o | | 29- | | | |
| 21 | 2.7 | 3.2 | 2.6 | 3.4 | 2.3 | 2.2 | 2.7 | 2.2 | 21.3 | 0.8 | 3o4+3o4+ 2+2o2+2o | | 23+ | Ten Quiet | | |
| 22 | 3.2 | 2.8 | 2.5 | 2.7 | 3.3 | 4.4 | 3.8 | 3.2 | 25.9 | 1.0 | 4-3+3-3o 3+5o4o3+ | | 28+ | | | |
| 23 | 2.5 | 1.7 | 1.8 | 2.0 | 2.5 | 3.0 | 2.2 | 2.6 | 18.3 | 0.7 | 3o2o2+2+ 3-3o2o2+ | | 20- | | | |
| 24 | 1.7 | 1.4 | 1.6 | 1.6 | 0.8 | 0.6 | 1.7 | 1.8 | 11.2 | 0.1 | 2o2-1+2- 0+1-2-2o | | 11+ | 1 | | |
| 25 | 1.6 | 0.7 | 0.6 | 0.7 | 0.9 | 0.8 | 1.0 | 1.2 | 7.5 | 0.0 | 1+1-0+1- 0+1-0+1- | | 5o | 3 | | |
| 26 | 1.3 | 1.2 | 2.2 | 3.4 | 2.7 | 1.9 | 2.6 | 4.8 | 20.1 | 1.0 | 1+1+2+4o 3-2o2+5+ | | 21+ | 4 | | |
| 27 | 2.9 | 3.1 | 1.9 | 2.1 | 2.3 | 0.8 | 0.3 | 1.4 | 14.8 | 0.5 | 3o4o2+2+ 2+0+0+1+ | | 16o | 5 | | |
| 28 | 0.7 | 2.7 | 2.7 | 4.4 | 6.5 | 7.3 | 7.4 | 4.7 | 36.4 | 1.9 | 0+4-3+5+ 7o8o9-5o | | 41+ | 6 | | |
| 29 | 3.4 | 2.7 | 2.1 | 2.0 | 2.4 | 1.4 | 1.1 | 1.4 | 16.5 | 0.6 | 4-3+3-2o 3-1+1o2- | | 18+ | 24 | | |
| 30 | 1.1 | 2.5 | 2.6 | 2.9 | 1.5 | 0.8 | 1.1 | 0.3 | 12.8 | 0.5 | 1o3+3+3+ 1+1o1o0o | | 14+ | 25 | | |
| 31 | 0.3 | 0.9 | 0.7 | 0.6 | 1.1 | 0.6 | 1.2 | 1.5 | 6.9 | 0.0 | 0o1-1-1- 1-1-1o1+ | | 6- | 27 | | |
| Mean | 2.65 | 2.40 | 2.57 | 2.91 | 2.65 | 0.83 | | | | | | | | | | |
| | 2.41 | 2.76 | 2.62 | 2.88 | | | | | | | | | | | | |

Table 94Sudden Ionosphere Disturbances Observed at Washington, D. C.November 1951

| 1951 Day | GCT | | Location of transmitters | Relative intensity at minimum* | Other phenomena |
|-------------|-----------|------|--------------------------|---|--------------------------------|
| | Beginning | End | | | |
| November | | | | | |
| 3 | 2135 | 2210 | Ohio, D. C., Mexico | 0.1 | |
| 4 | 1502 | 1650 | Ohio, D. C. | 0.0 | |
| 7 | 1820 | 1910 | Ohio, D. C., Colombia | --- | Solar flare** 1830 |
| 13 | 1950 | 2100 | Ohio, D. C., Mexico | 0.2 | Terr.mag.pulse*** 1952-2030 |

*Ratio of received field intensity during SID to average field intensity before and after, for station KQ2XAU (formerly W8XAL), 6080 kilocycles, 600 kilometers distant.

**Time of observation at Sacramento Peak, New Mexico.

***As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

---Insufficient data.

Table 95

Sudden Ionosphere Disturbances Reported by International Telephone
and Telegraph Corporation, as Observed at Platanos, Argentina

| 1951 Day | GCT | | Location of transmitters |
|---------------|-----------|------|---|
| | Beginning | End | |
| October 19 | 1735 | 1745 | Brazil, England, France, Germany, Netherlands, Spain |

Table 96

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,Cable and Wireless, Ltd., as Observed in England

| 1951 Day | GCT | | Receiving station | Location of transmitters |
|---------------|-----------|------|----------------------|--|
| | Beginning | End | | |
| November 6 | 0946 | 1000 | Brentwood | Austria, Belgian Congo, Brazil, Canary Is., Eritrea, Greece, Kenya, Madagascar, New York, Palestine, Portugal, Southern Rhodesia, Spain, Switzerland, Syria, Trans-Jordan, Turkey, Yugoslavia, Zanzibar |
| 6 | 0940 | 1000 | Somerton | Argentina, Ceylon, Formosa, India, Iran, Malay States, Thailand |

Table 97

Sudden Ionosphere Disturbances Reported by Engineer-in-Chief,Cable and Wireless, Ltd., as Observed in Barbados, B.W.I.

| 1951 Day | GCT | | Location of transmitters | Other phenomena |
|----------------|-----------|------|---|---|
| | Beginning | End | | |
| September 3 | 1310 | 1400 | Canada, England, Grenada, Jamaica, Peru, Trinidad | Solar flare* 1320 Solar flare** 1330 |
| 15 | 1510 | 1525 | Bermuda, Canada, England, Florida, Grenada, Jamaica, Peru, St. Lucia, St. Vincent, Trinidad | Solar flare* 1510 Solar flare** 1500 Terr.mag.pulse*** 1510-1530 |

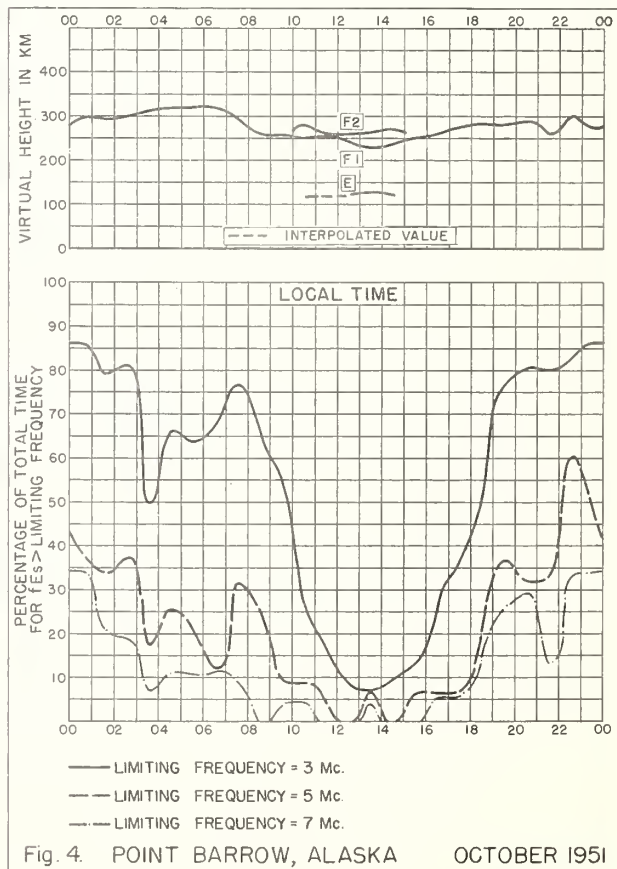
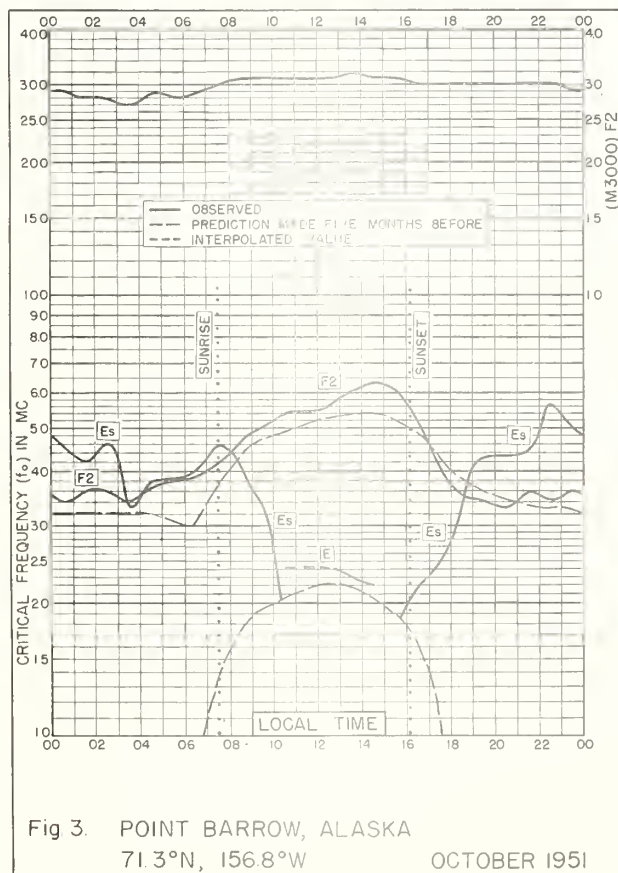
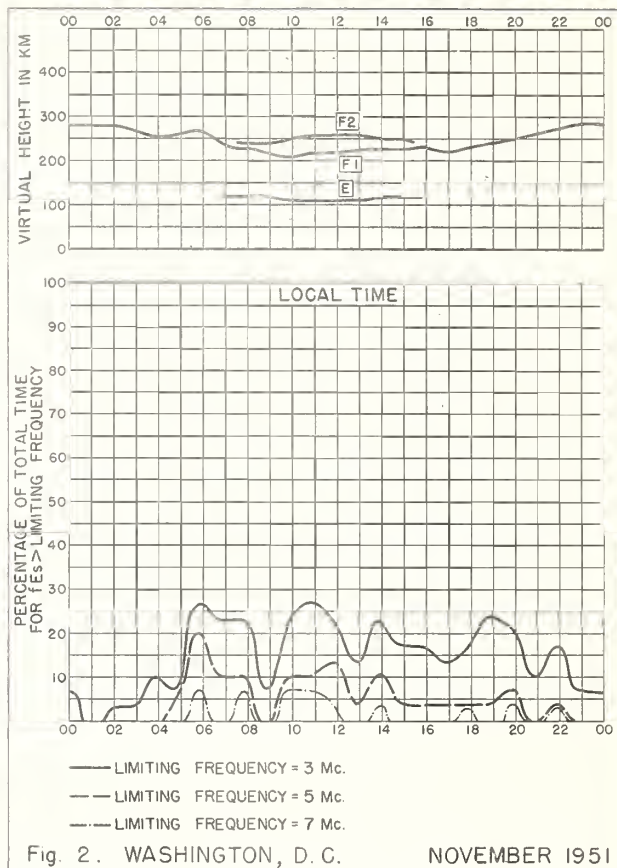
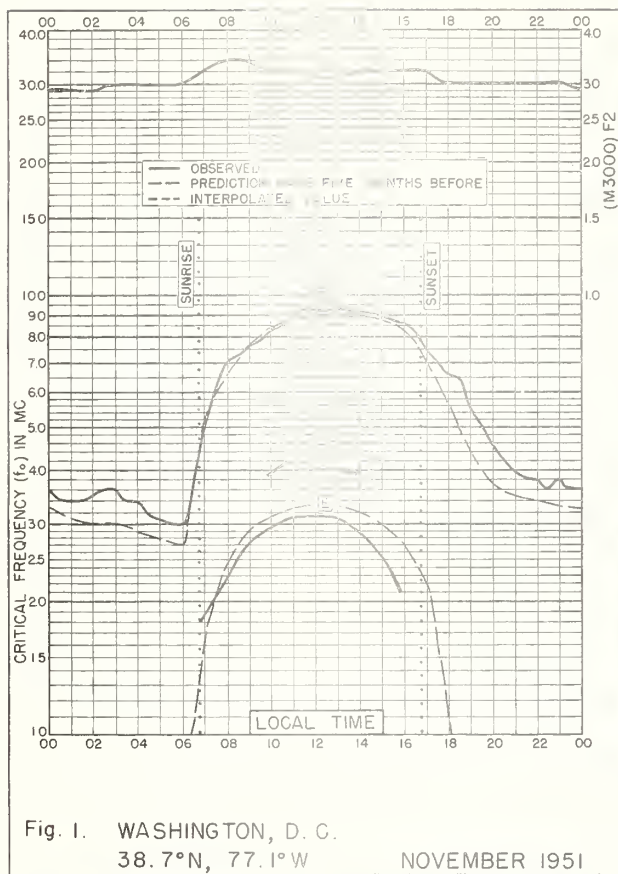
*Time of observation at McMath-Hulbert Observatory, Pontiac, Michigan.

**Time of observation at Sacramento Peak, New Mexico.

***As observed on Cheltenham magnetogram of the United States Coast and Geodetic Survey.

Note: Observers are invited to send to the CRPL information on times of beginning and end of sudden ionosphere disturbances for publication as above. Address letters to the Central Radio Propagation Laboratory, National Bureau of Standards, Washington 25, D. C.

GRAPHS OF IONOSPHERIC DATA



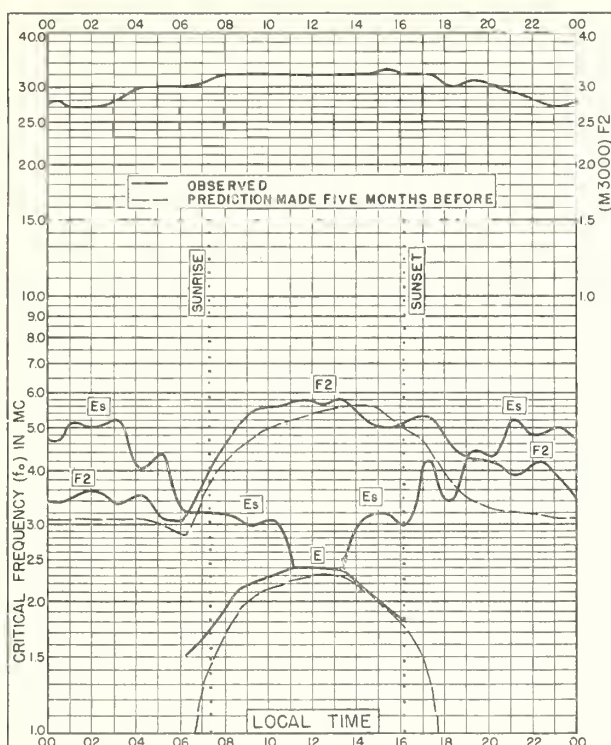


Fig. 5. TROMSØ, NORWAY
69.7°N, 19.0°E

OCTOBER 1951

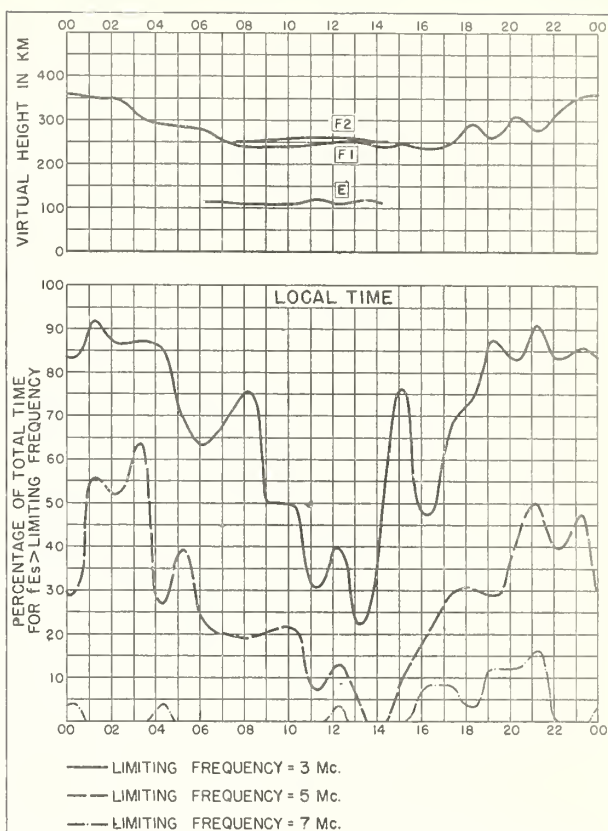


Fig. 6. TROMSØ, NORWAY

OCTOBER 1951

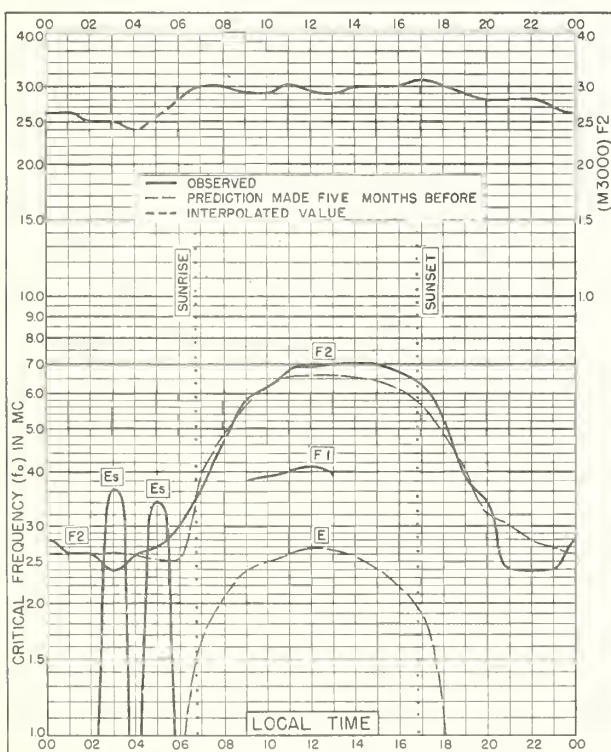


Fig. 7. ANCHORAGE, ALASKA
61.2°N, 149.9°W

OCTOBER 1951

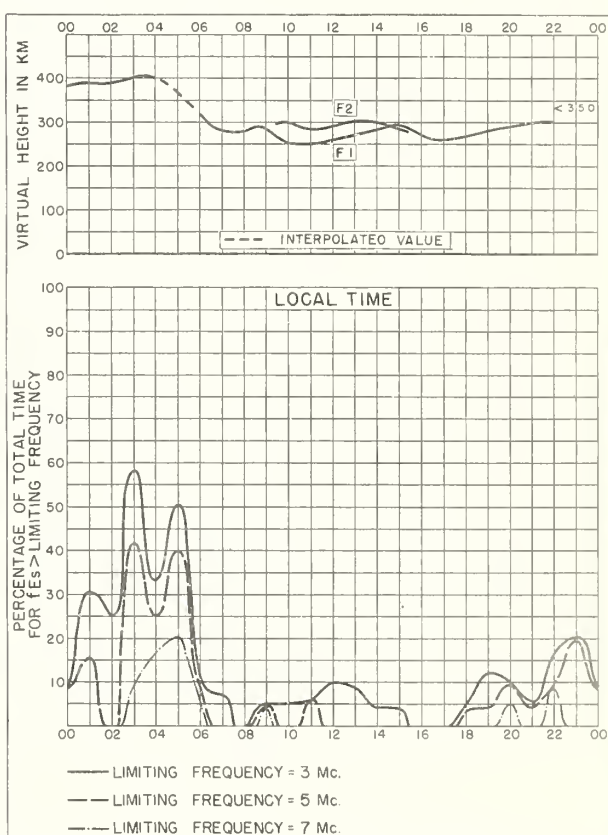


Fig. 8. ANCHORAGE, ALASKA

OCTOBER 1951

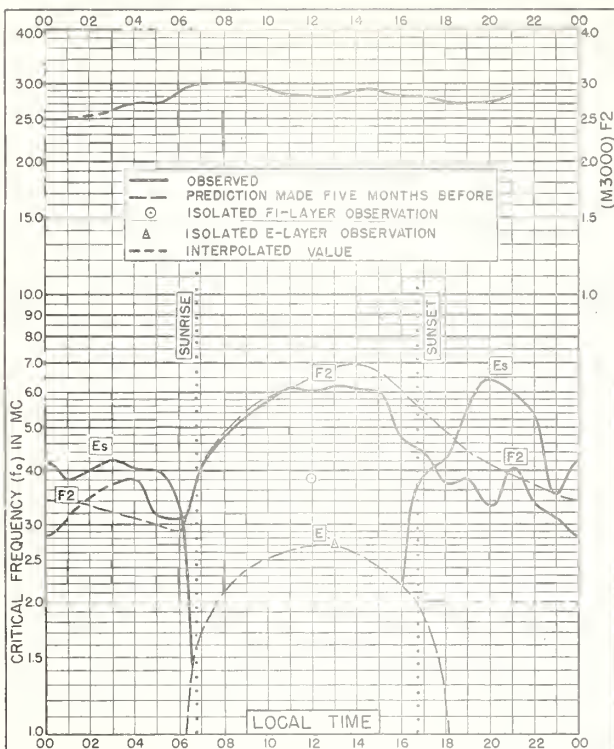


Fig. 9 NARSARSSUAK, GREENLAND
61.2°N, 45.4°W

OCTOBER 1951

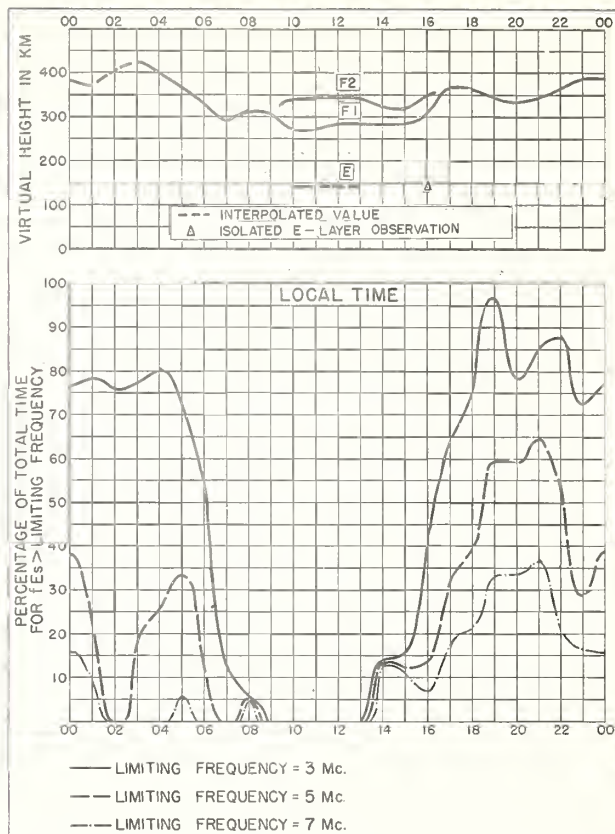


Fig. 10. NARSARSSUAK, GREENLAND

OCTOBER 1951

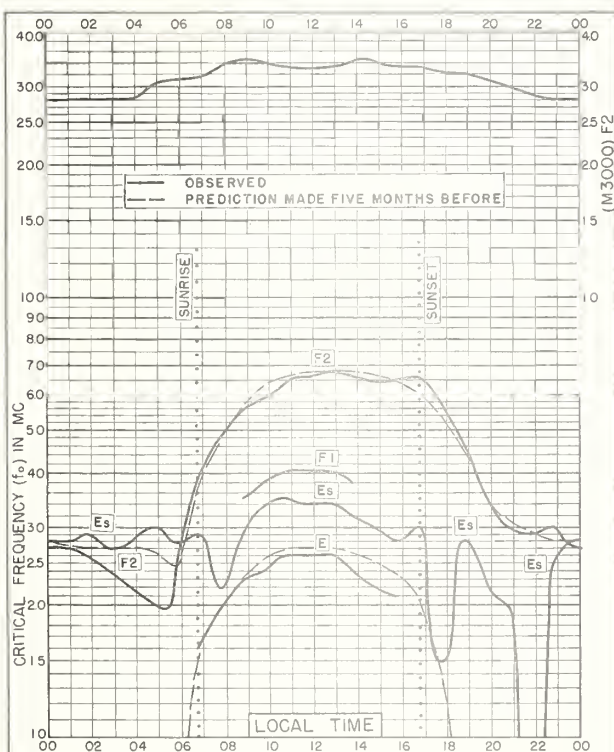


Fig. 11. OSLO, NORWAY
60.0°N, 11.0°E

OCTOBER 1951

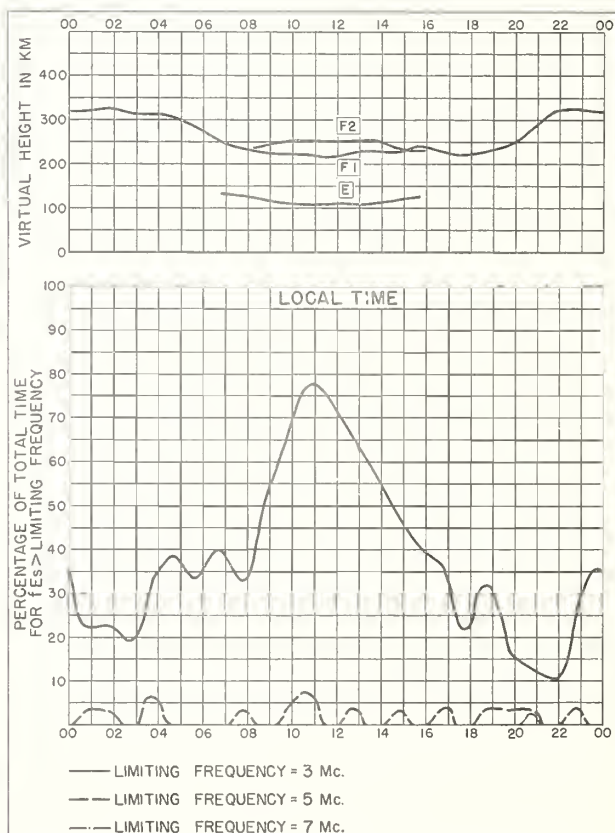


Fig. 12. OSLO, NORWAY

OCTOBER 1951

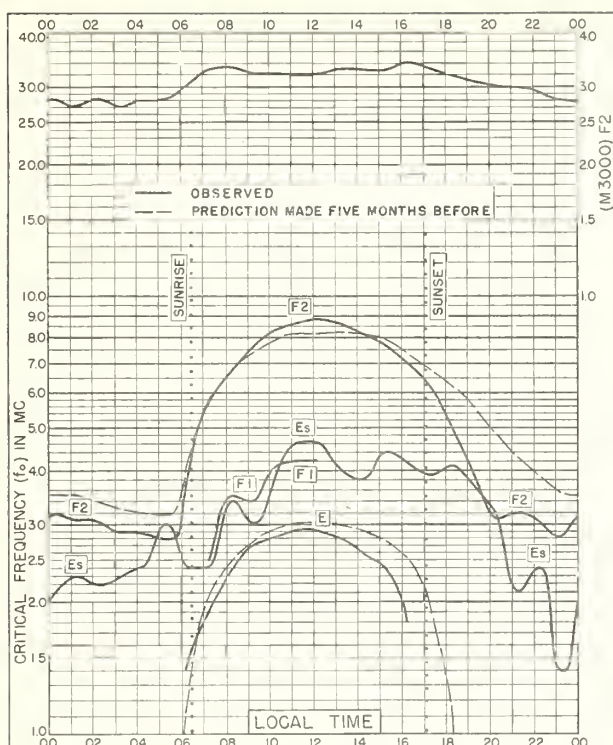


Fig 13. ADAK, ALASKA
51.9°N, 176.6°W

OCTOBER 1951

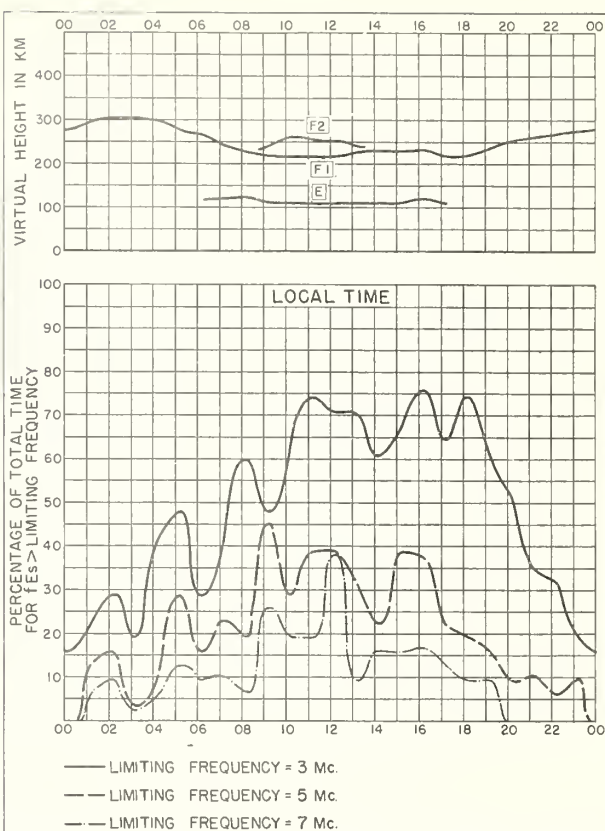


Fig 14. ADAK, ALASKA

OCTOBER 1951

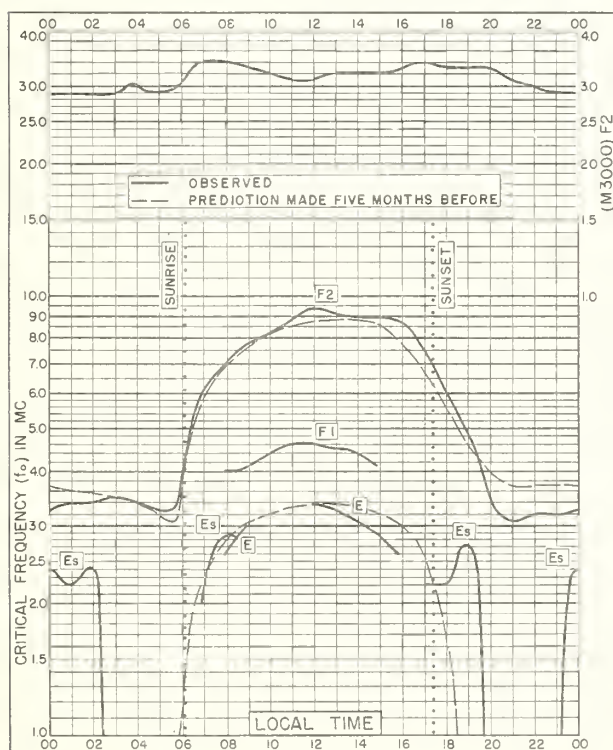


Fig 15. SAN FRANCISCO, CALIFORNIA
37.4°N, 122.2°W

OCTOBER 1951

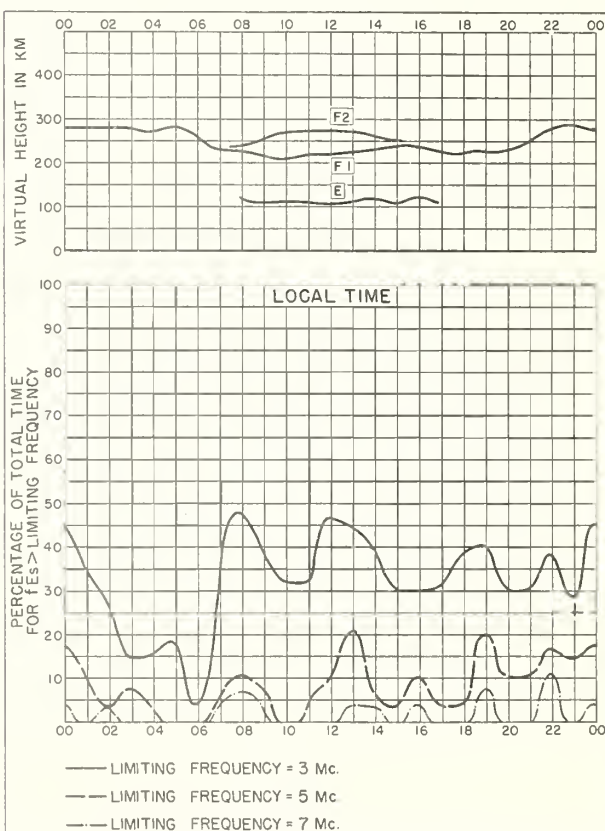


Fig 16. SAN FRANCISCO, CALIFORNIA

OCTOBER 1951

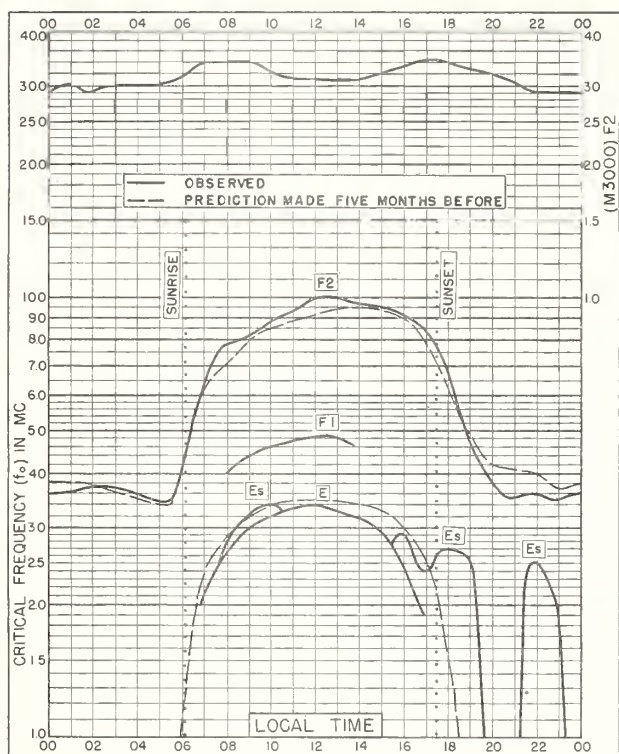


Fig 17 WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W OCTOBER 1951

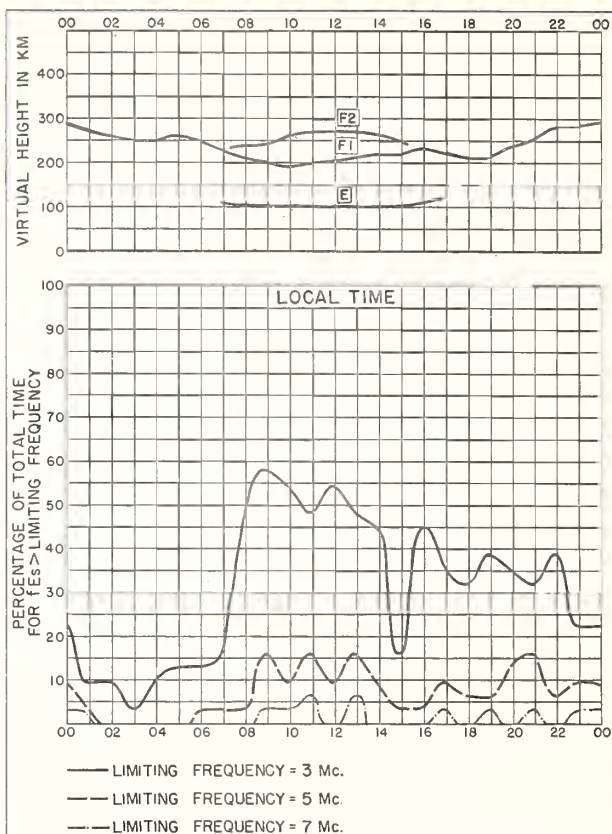


Fig 18. WHITE SANDS, NEW MEXICO OCTOBER 1951

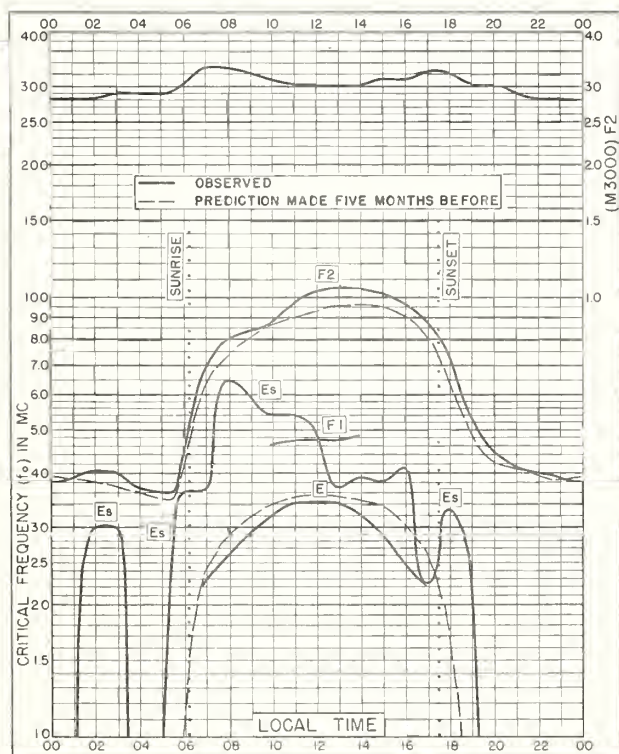


Fig. 19 BATON ROUGE, LOUISIANA
30.5°N, 91.2°W OCTOBER 1951

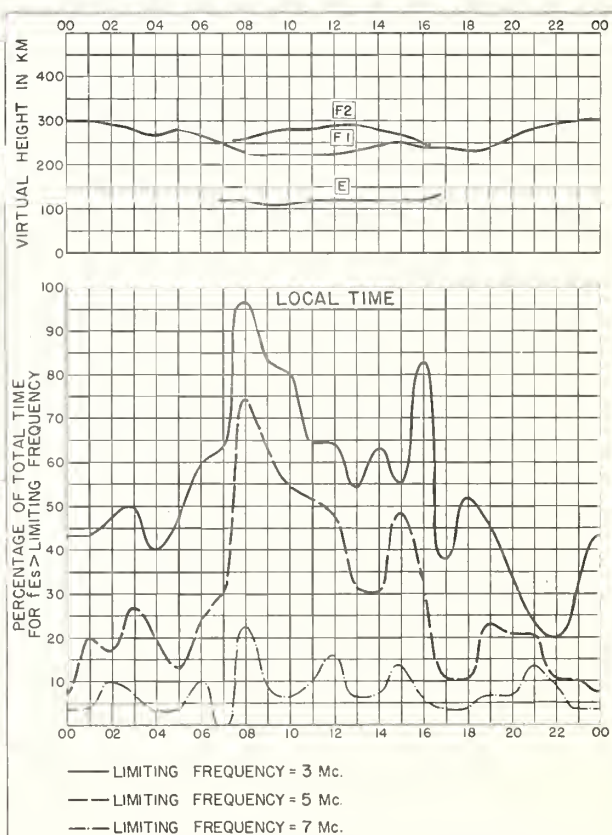


Fig. 20. BATON ROUGE, LOUISIANA OCTOBER 1951

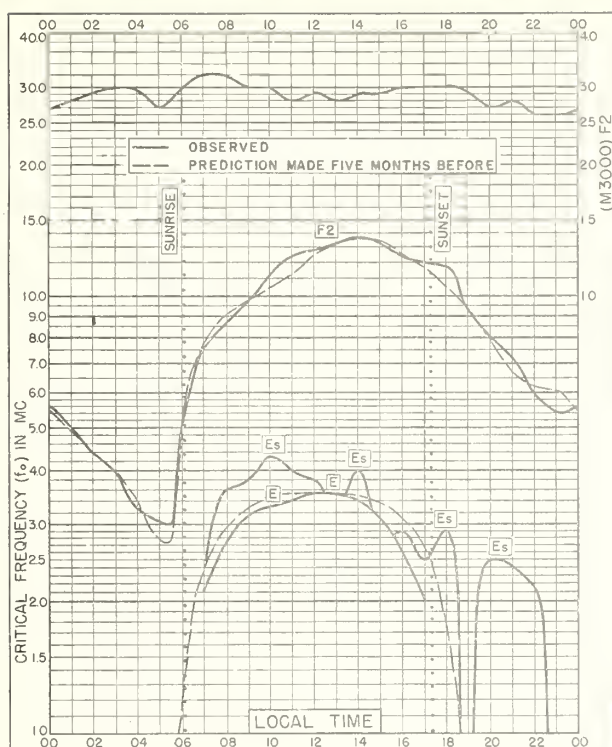


Fig. 21. OKINAWA I.
26.3°N, 127.8°E

OCTOBER 1951

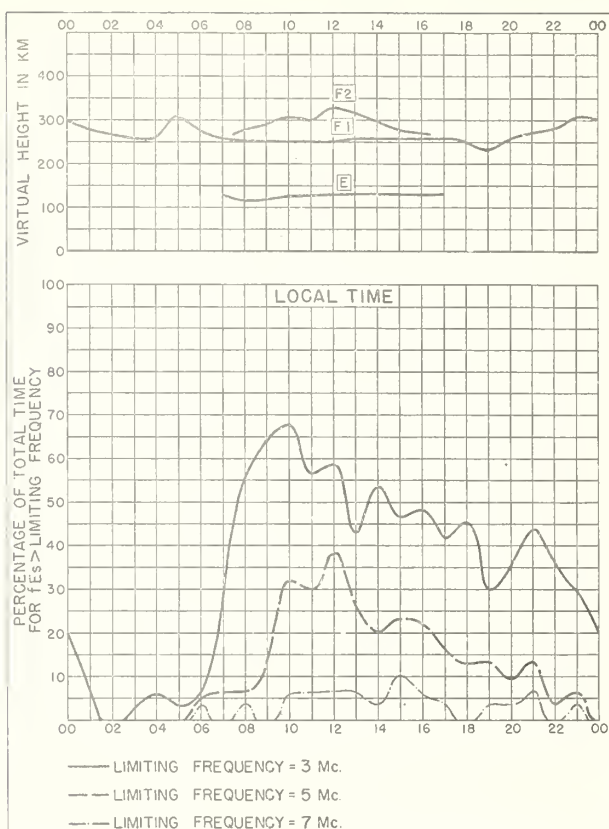


Fig. 22. OKINAWA I.

OCTOBER 1951

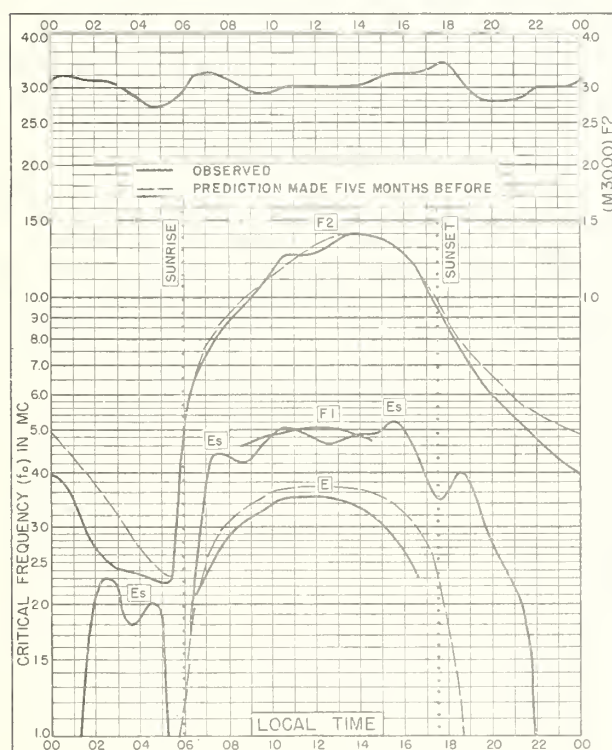


Fig. 23. MAUI, HAWAII
20.8°N, 156.5°W

OCTOBER 1951

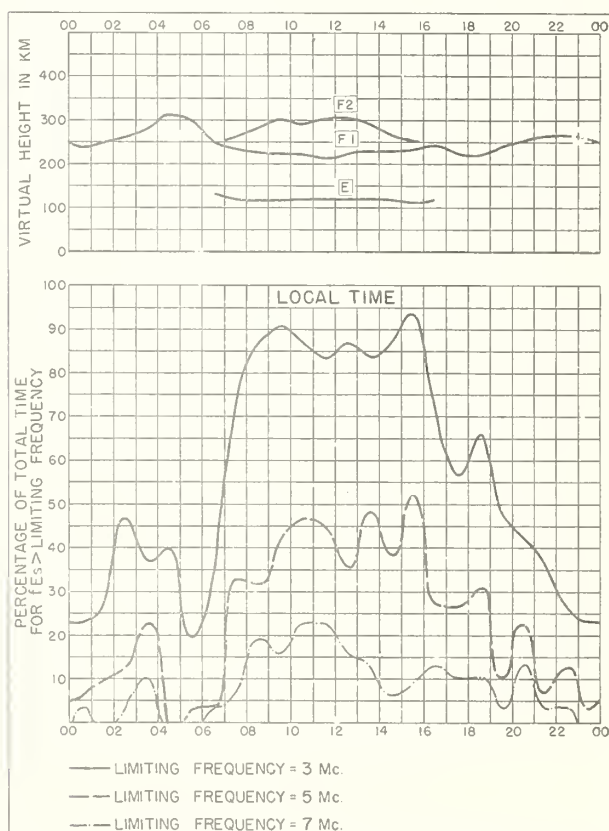


Fig. 24. MAUI, HAWAII

OCTOBER 1951

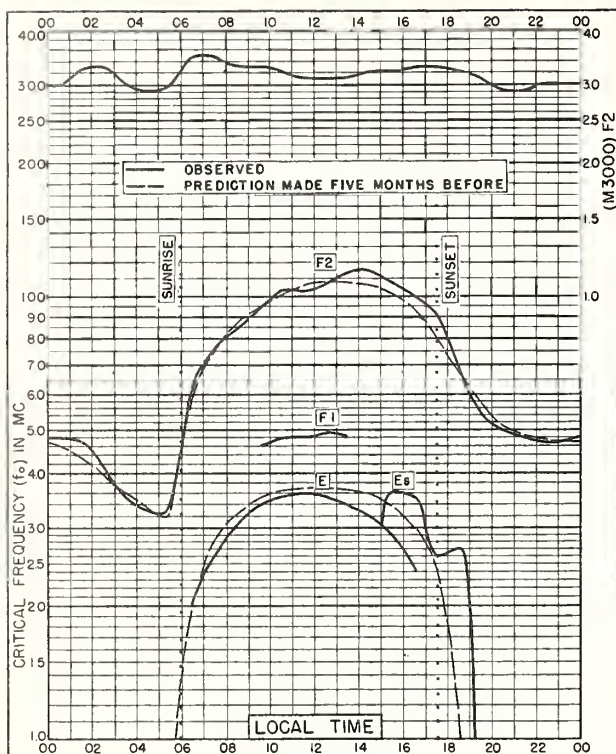


Fig 25. PUERTO RICO, W. I.
18.5°N, 67.2°W

OCTOBER 1951

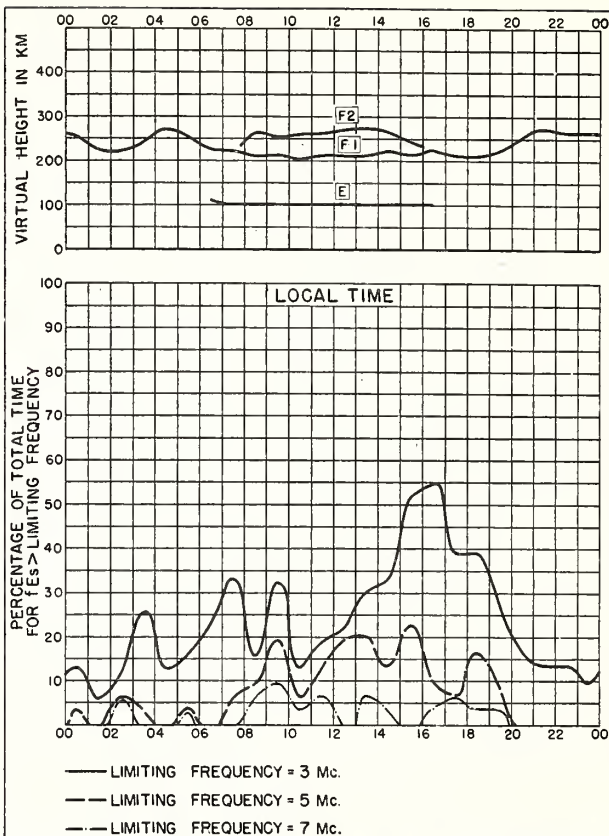


Fig 26. PUERTO RICO, W. I.

OCTOBER 1951

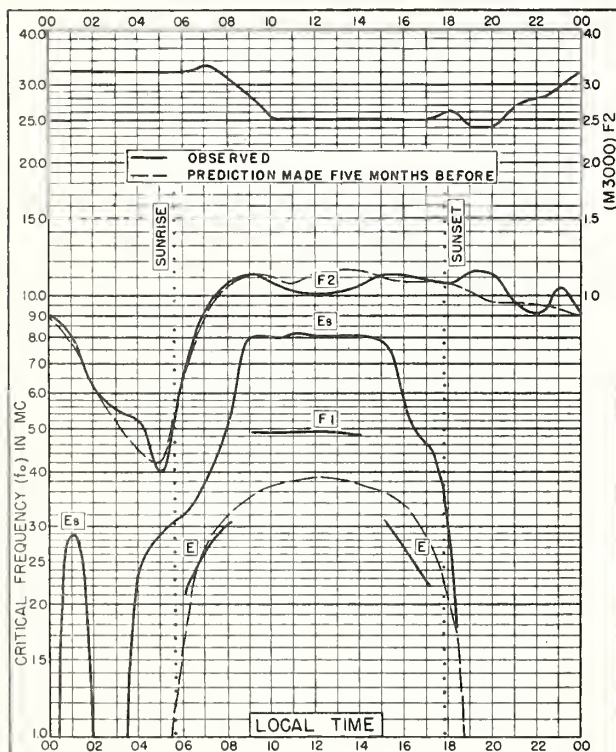


Fig 27. HUANCAYO, PERU
12.0°S, 75.3°W

OCTOBER 1951

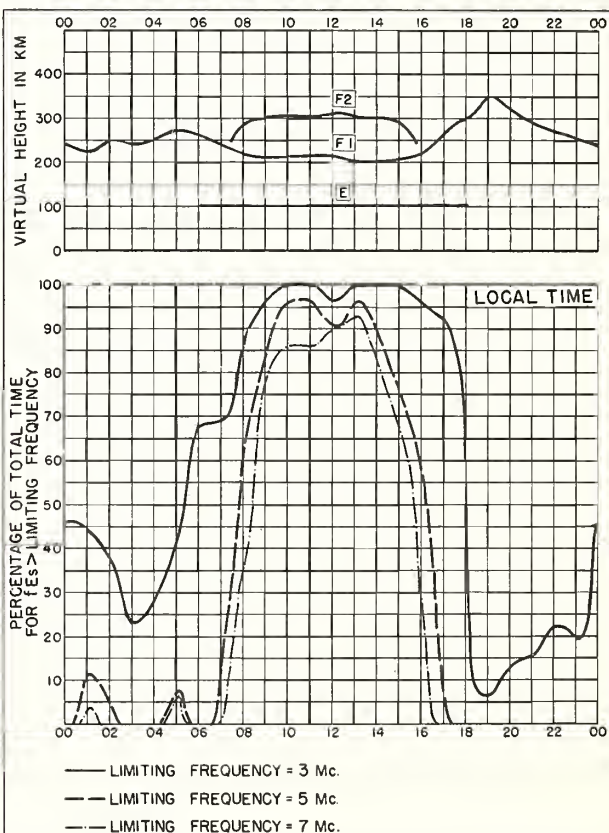


Fig 28. HUANCAYO, PERU

OCTOBER 1951

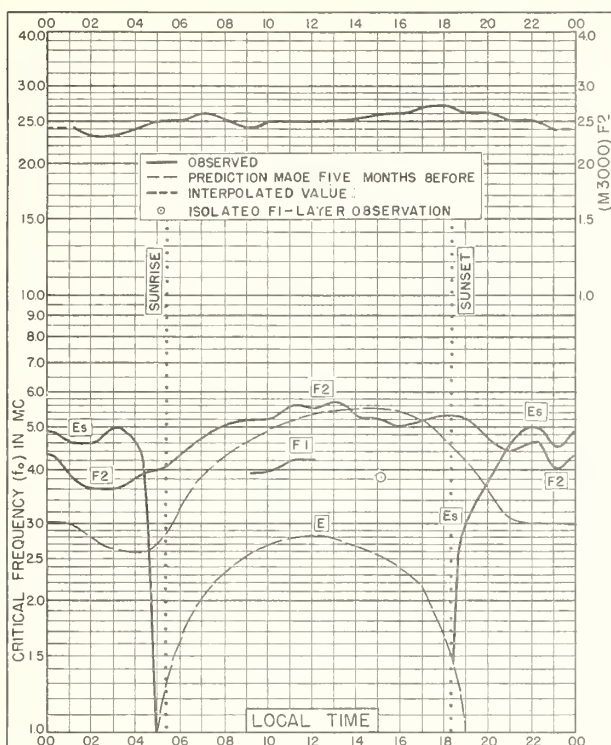


Fig 29. FAIRBANKS, ALASKA
64.9°N, 147.8°W

SEPTEMBER 1951

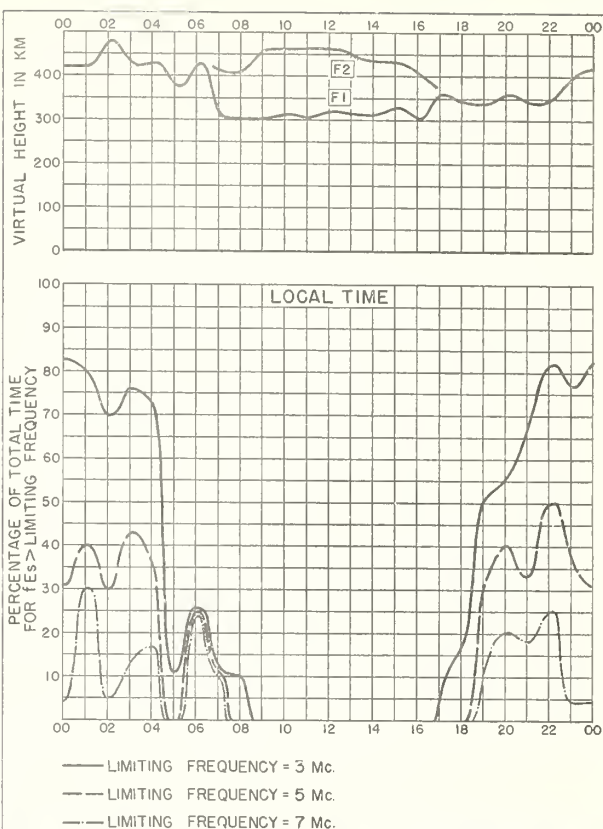


Fig 30. FAIRBANKS, ALASKA

SEPTEMBER 1951

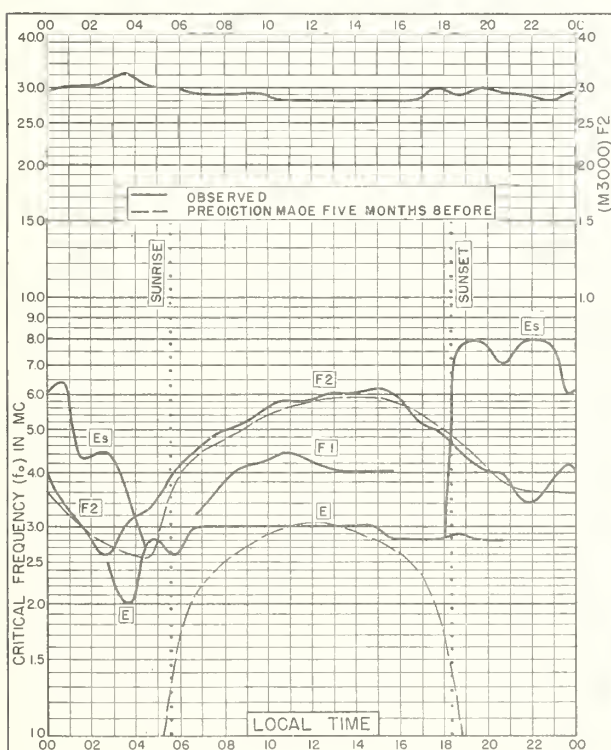


Fig 31. CHURCHILL, CANADA
58.8°N, 94.2°W

SEPTEMBER 1951

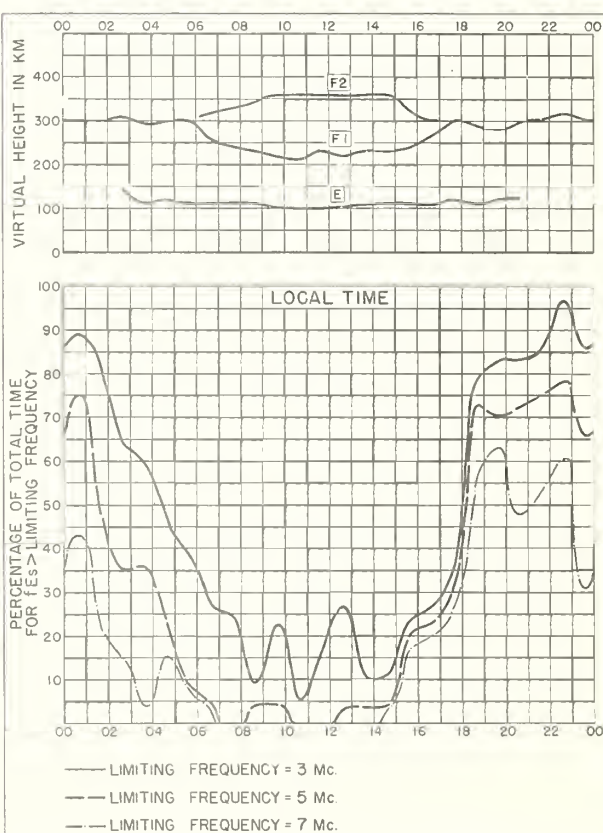


Fig 32. CHURCHILL, CANADA

SEPTEMBER 1951

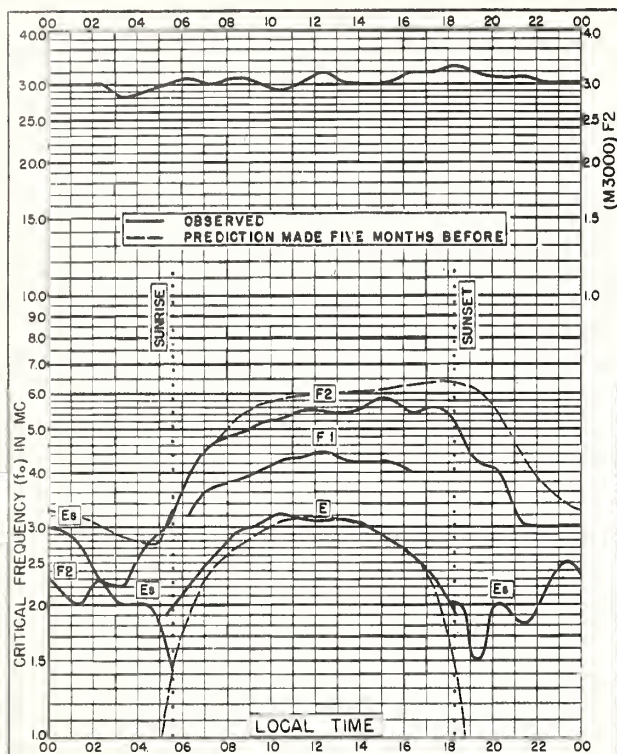


Fig. 33. PRINCE RUPERT, CANADA
54.3°N, 130.3°W

SEPTEMBER 1951

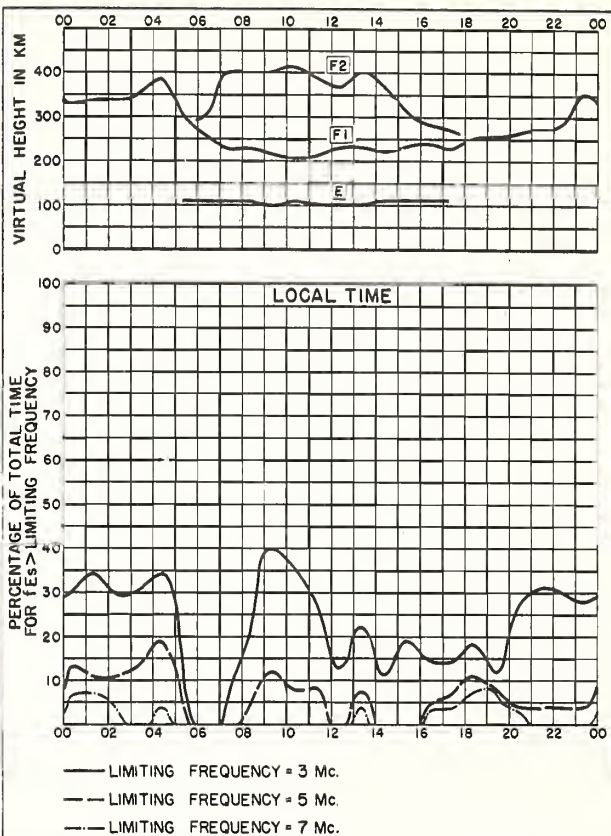


Fig. 34. PRINCE RUPERT, CANADA

SEPTEMBER 1951

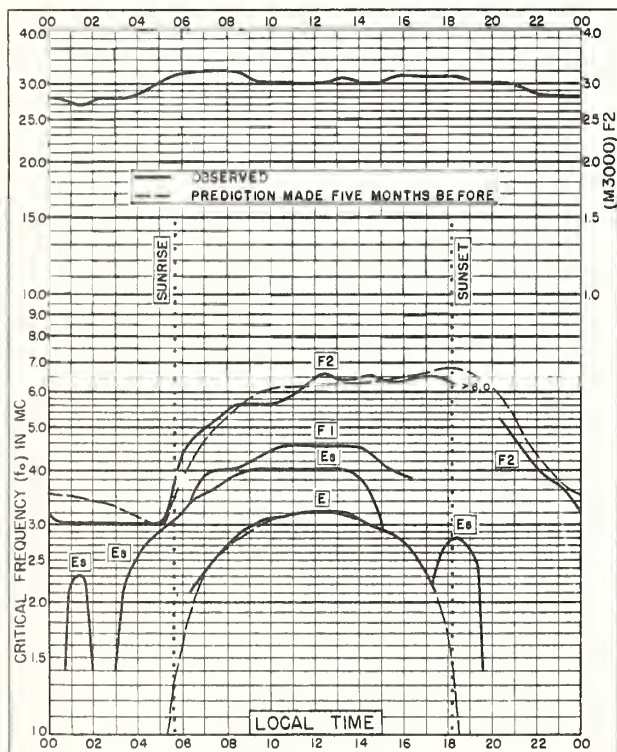


Fig. 35. De BILT, HOLLAND
52.1°N, 5.2°E

SEPTEMBER 1951

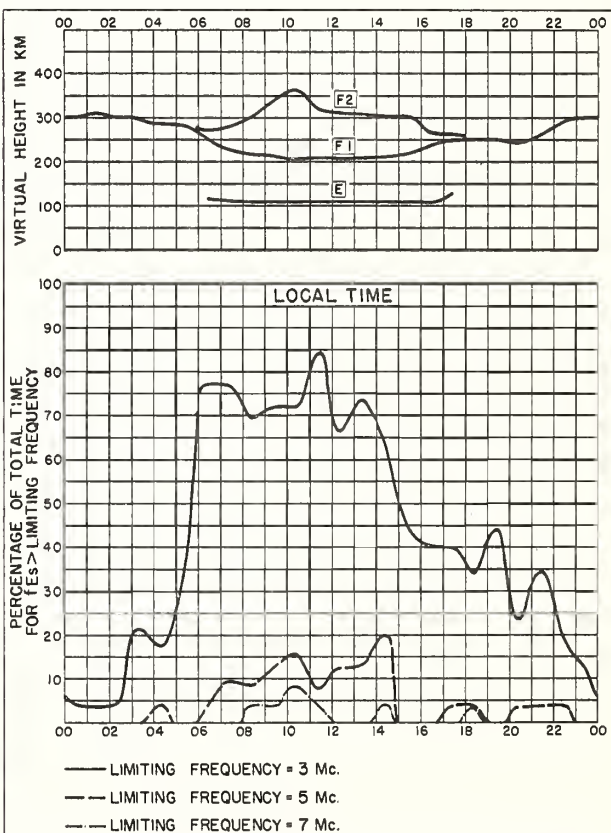


Fig. 36. De BILT, HOLLAND

SEPTEMBER 1951

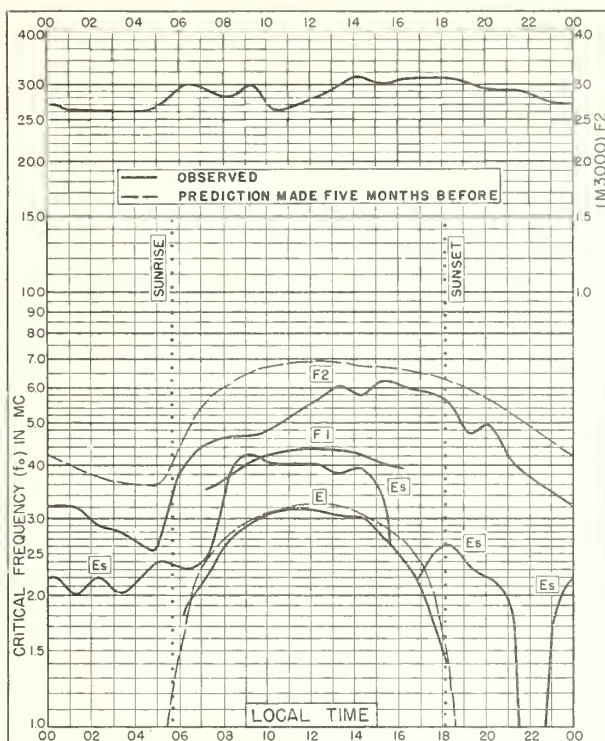


Fig. 37. ADAK, ALASKA
51.9°N, 176.6°W

SEPTEMBER 1951

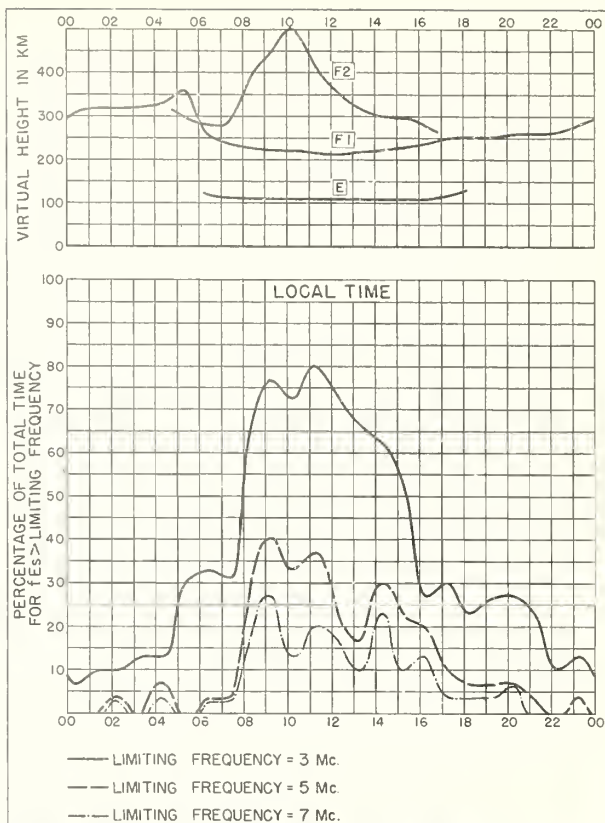


Fig. 38. ADAK, ALASKA

SEPTEMBER 1951

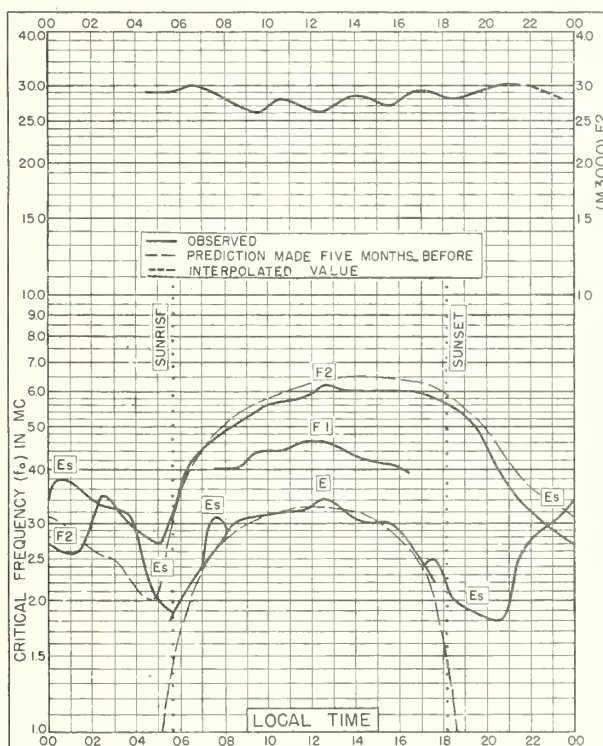


Fig. 39. WINNIPEG, CANADA
49.9°N, 97.4°W

SEPTEMBER 1951

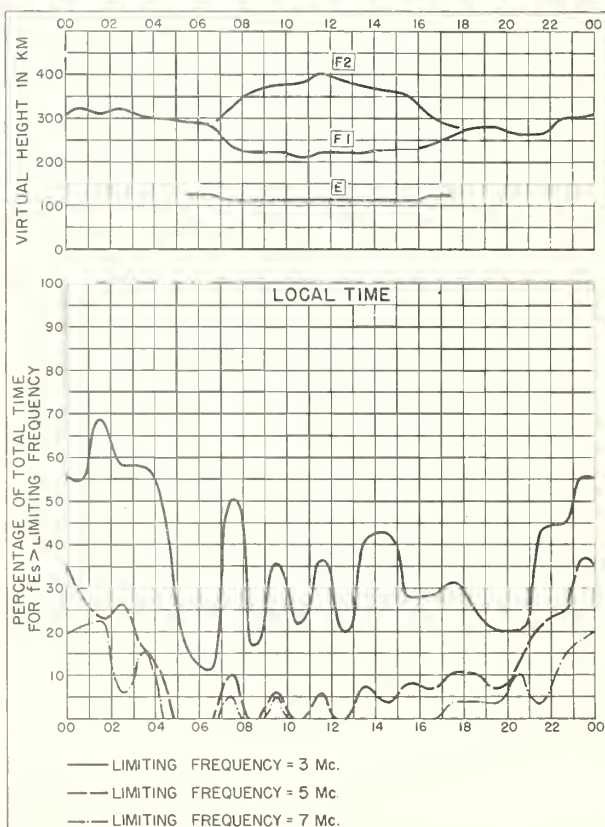


Fig. 40. WINNIPEG, CANADA

SEPTEMBER 1951

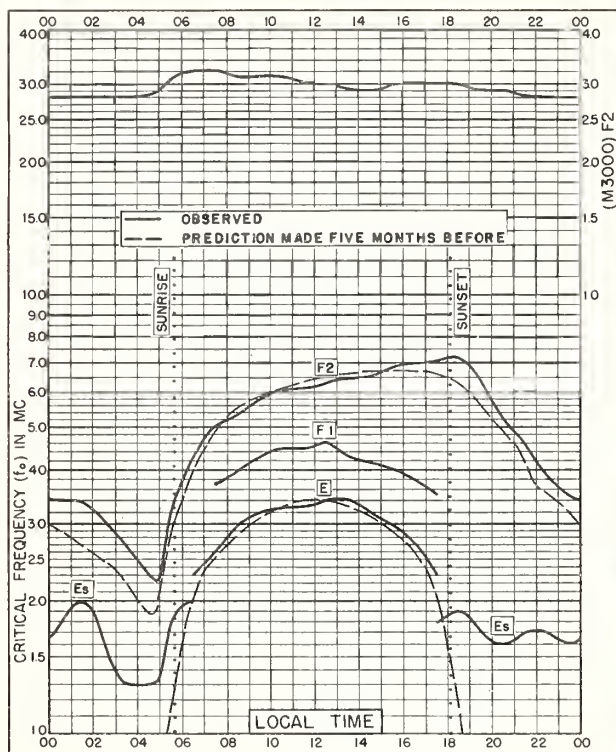


Fig. 41. ST. JOHN'S, NEWFOUNDLAND
47.6°N, 52.7°W

SEPTEMBER 1951

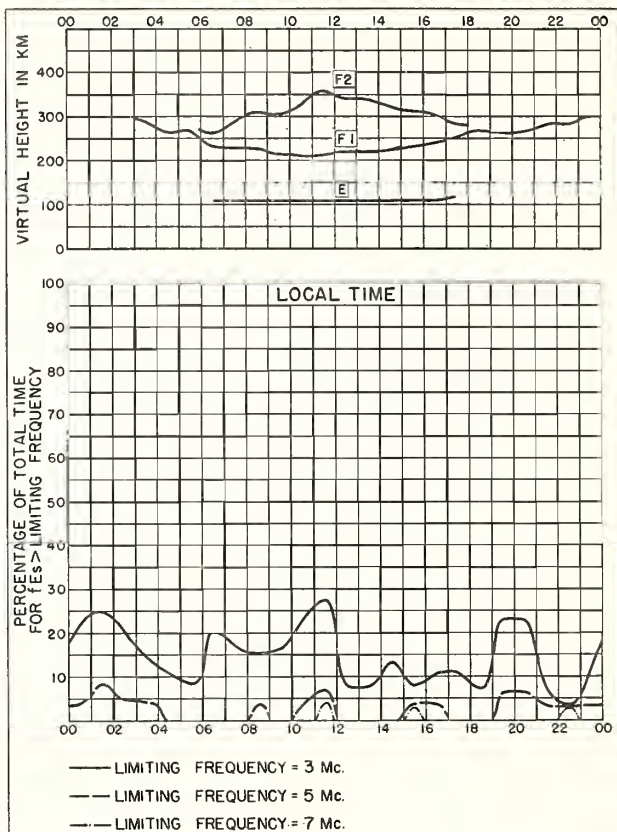


Fig. 42. ST. JOHN'S, NEWFOUNDLAND

SEPTEMBER 1951

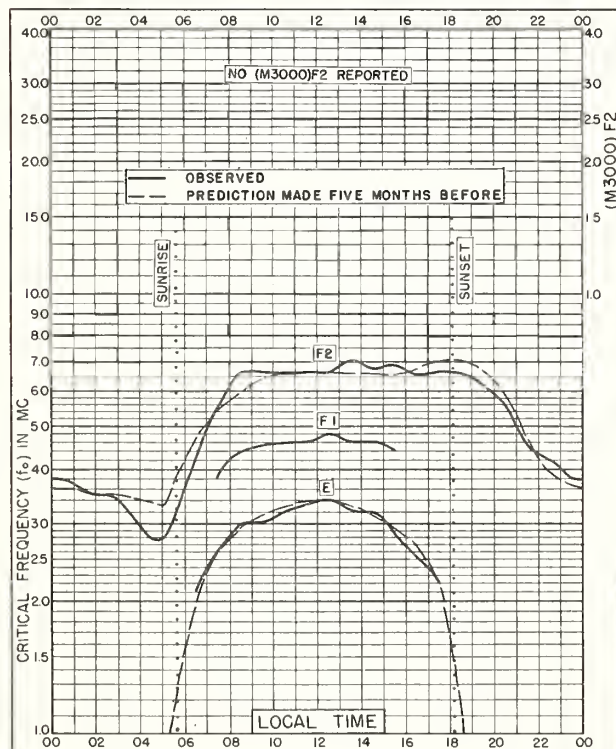


Fig. 43. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E

SEPTEMBER 1951

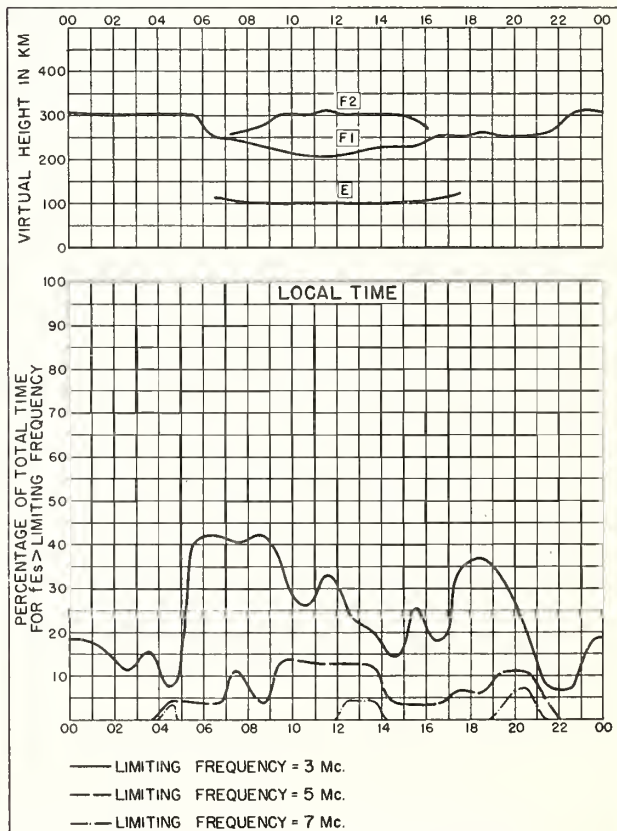


Fig. 44. SCHWARZENBURG, SWITZERLAND

SEPTEMBER 1951

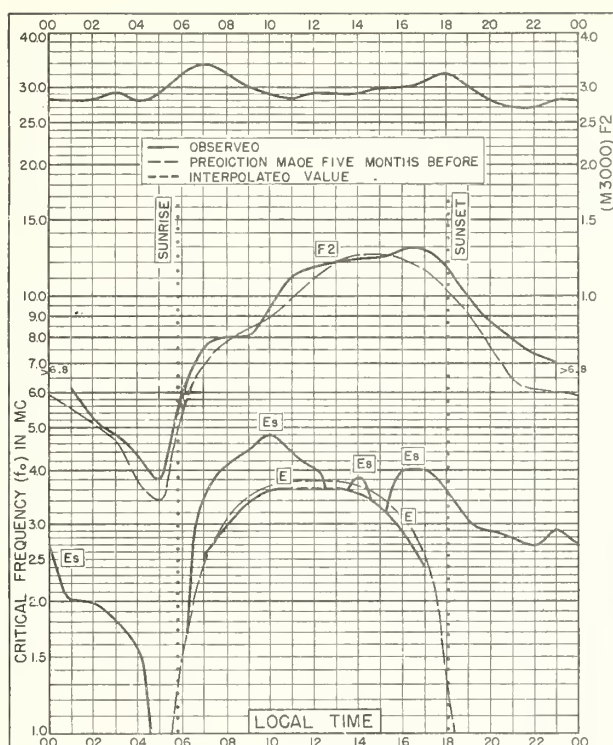


Fig. 45. OKINAWA I.
26.3°N, 127.8°E SEPTEMBER 1951

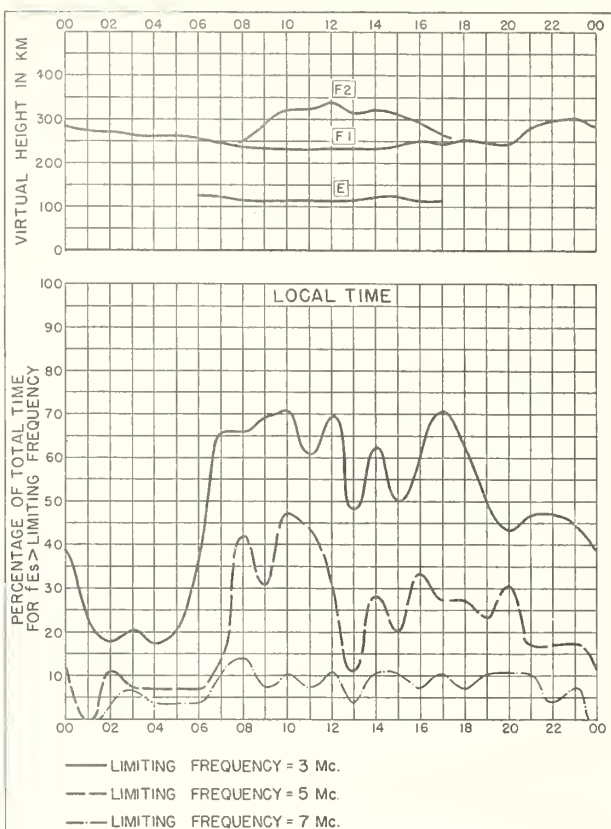


Fig. 46. OKINAWA I.
SEPTEMBER 1951

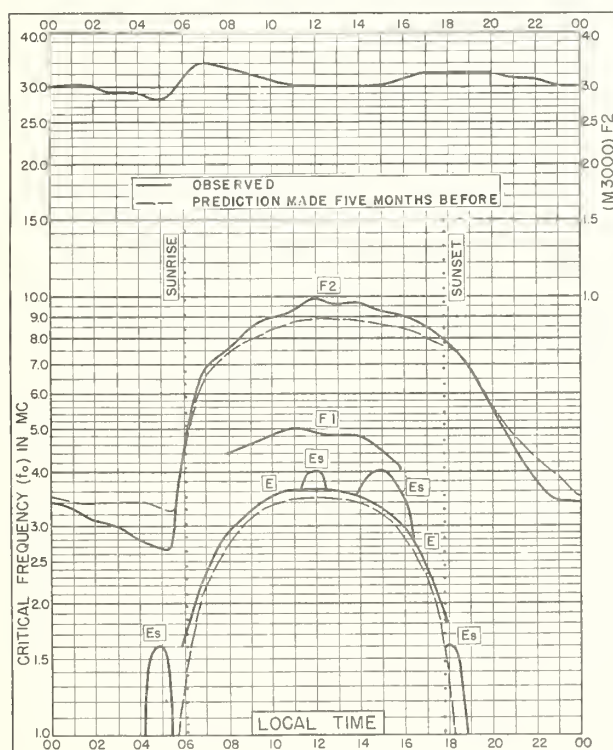


Fig. 47. JOHANNESBURG, U.O.F.S. AFRICA
26.2°S, 28.1°E SEPTEMBER 1951

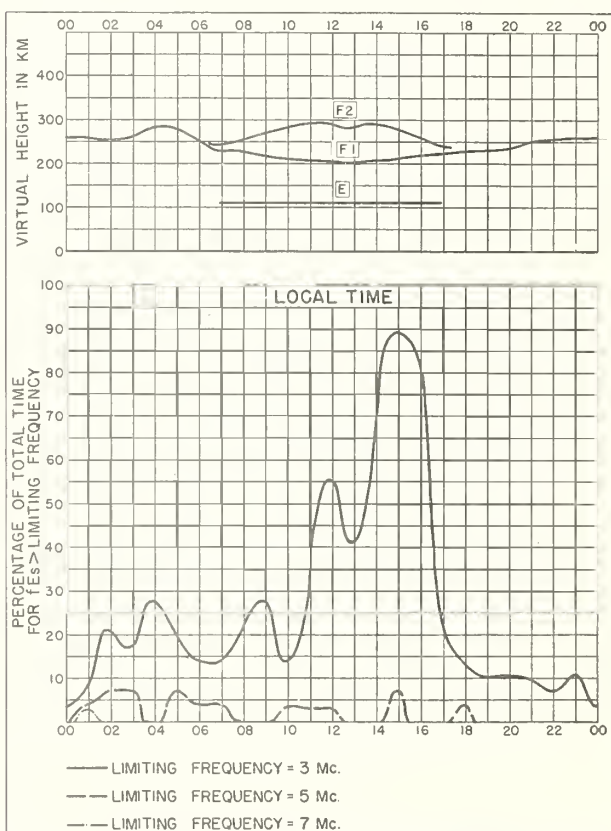


Fig. 48. JOHANNESBURG, U.O.F.S. AFRICA SEPTEMBER 1951

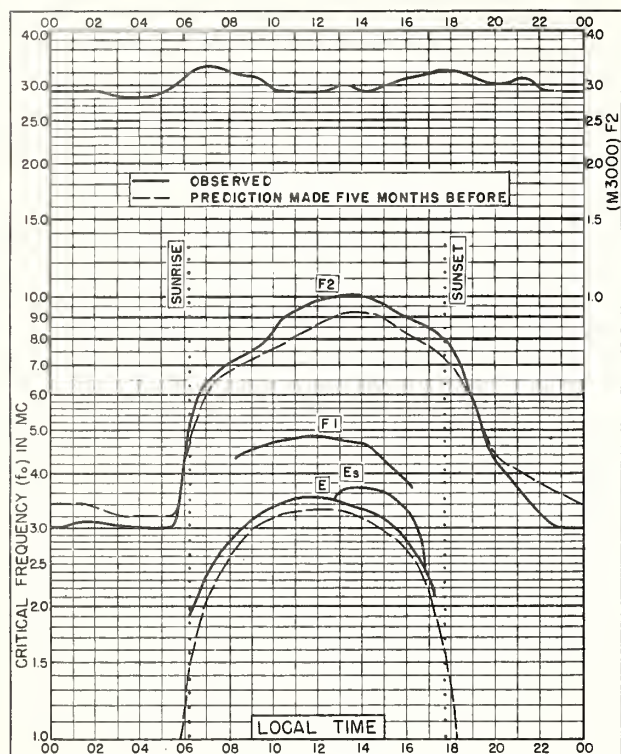


Fig. 49. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E
SEPTEMBER 1951

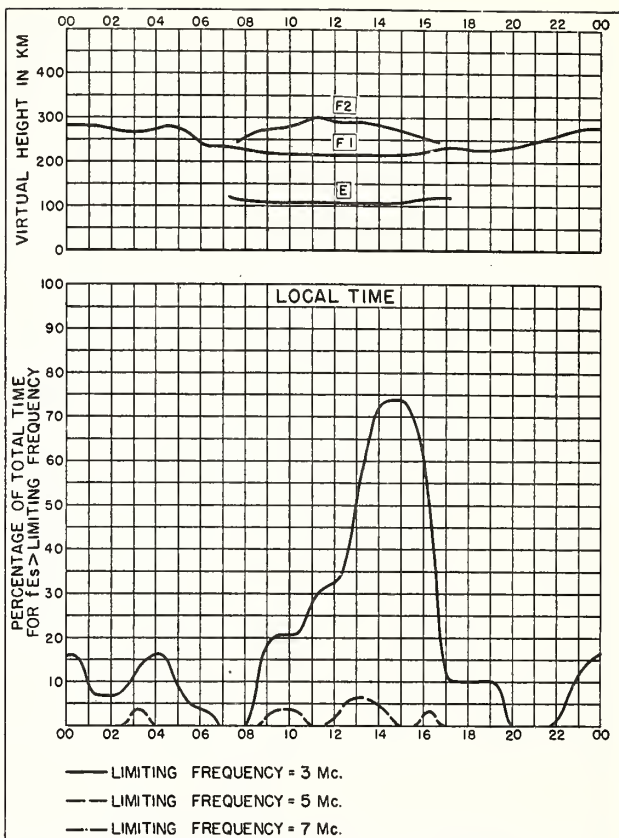


Fig. 50. CAPETOWN, U. OF S. AFRICA
SEPTEMBER 1951

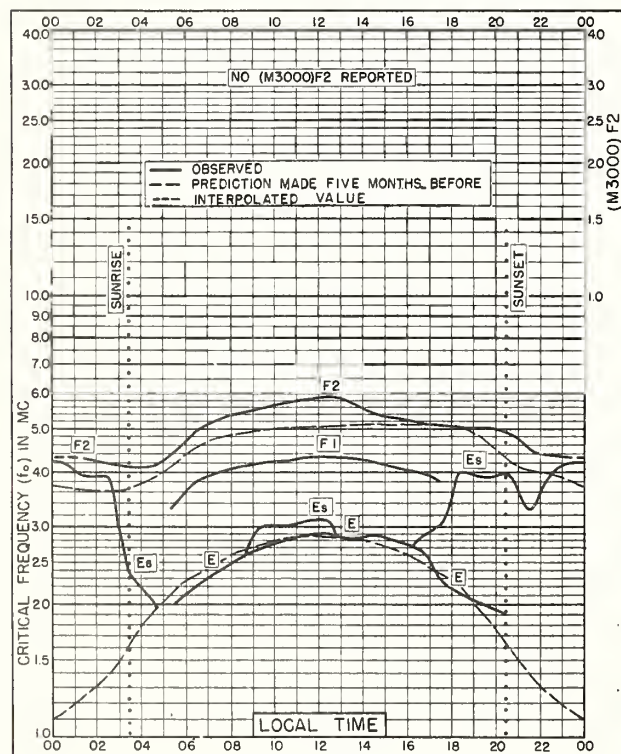


Fig. 51. KIRUNA, SWEDEN
67.8°N, 20.5°E
AUGUST 1951

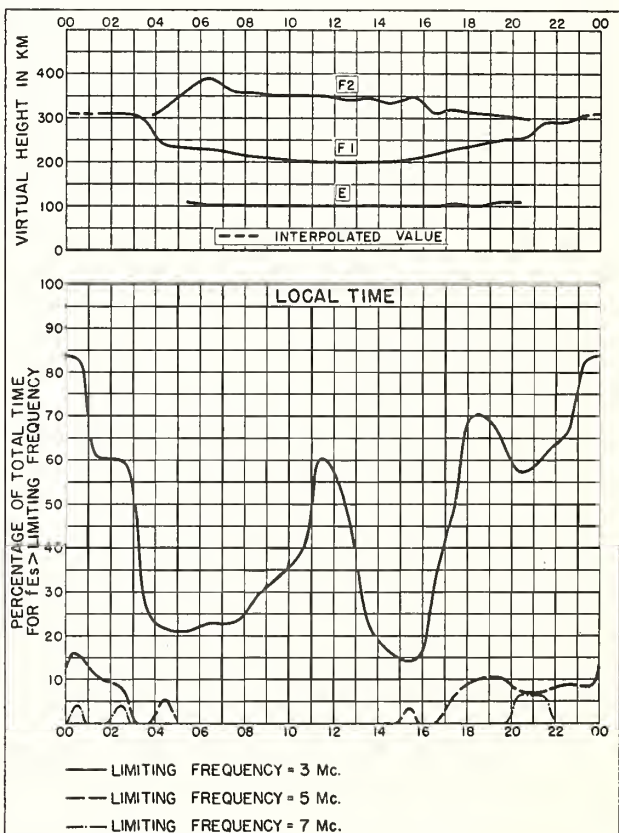


Fig. 52. KIRUNA, SWEDEN
AUGUST 1951

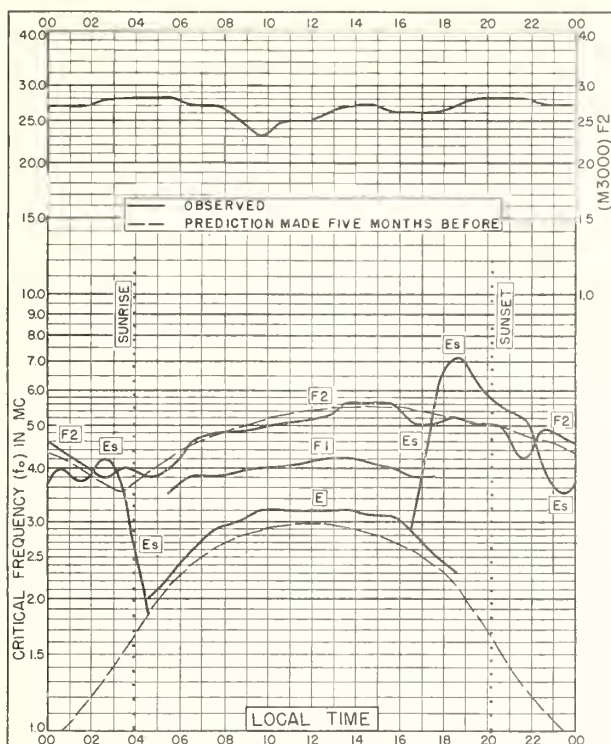


Fig. 53. BAKER LAKE, CANADA
64.3°N, 96.0°W

AUGUST 1951

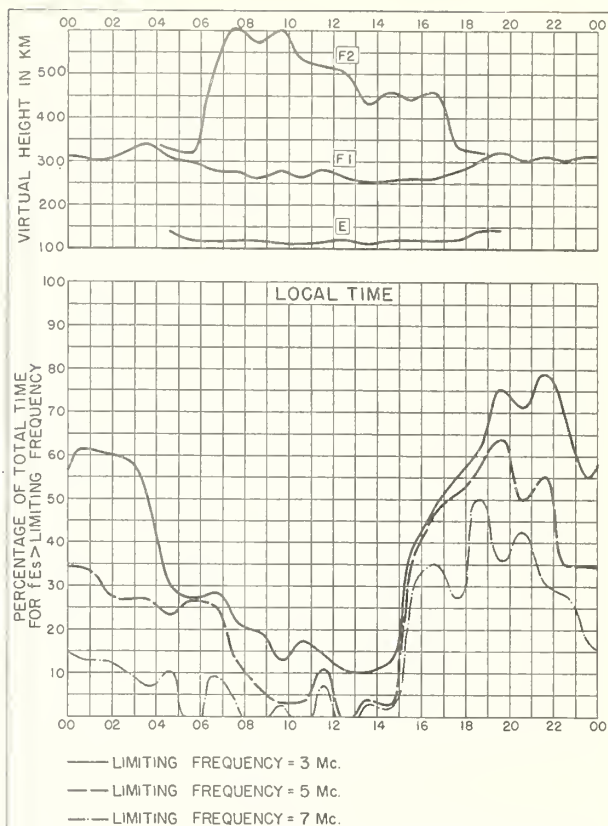


Fig. 54. BAKER LAKE, CANADA

AUGUST 1951

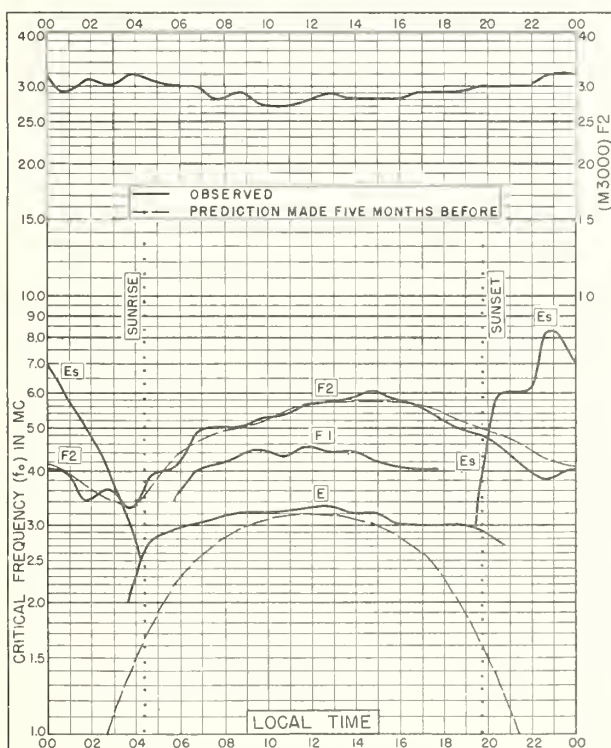


Fig. 55. CHURCHILL, CANADA
58.8°N, 94.2°W

AUGUST 1951

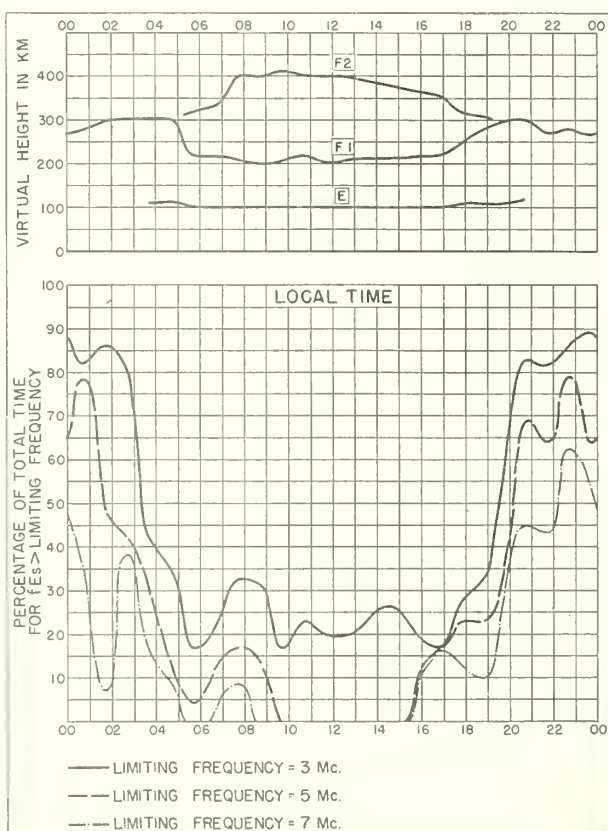


Fig. 56. CHURCHILL, CANADA

AUGUST 1951

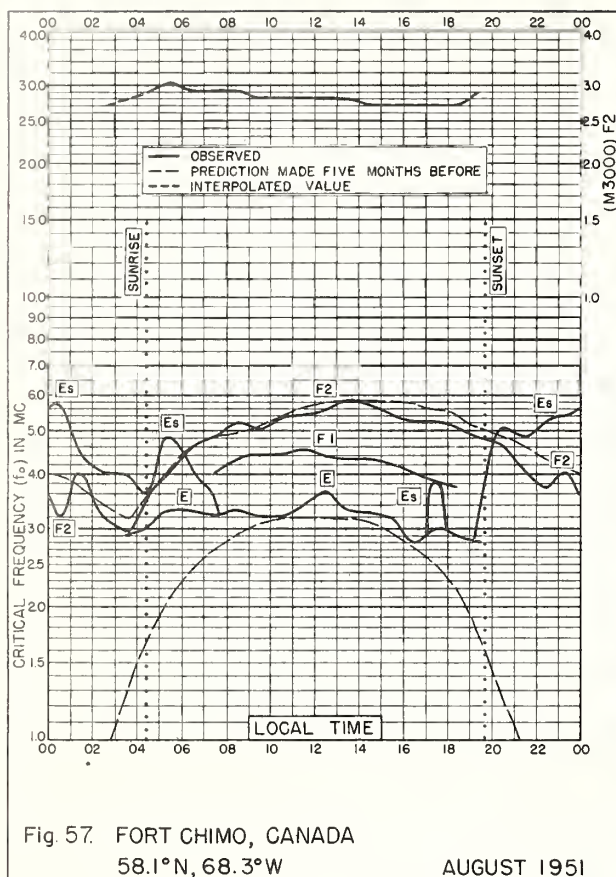


Fig. 57. FORT CHIMO, CANADA
58.1°N, 68.3°W

AUGUST 1951

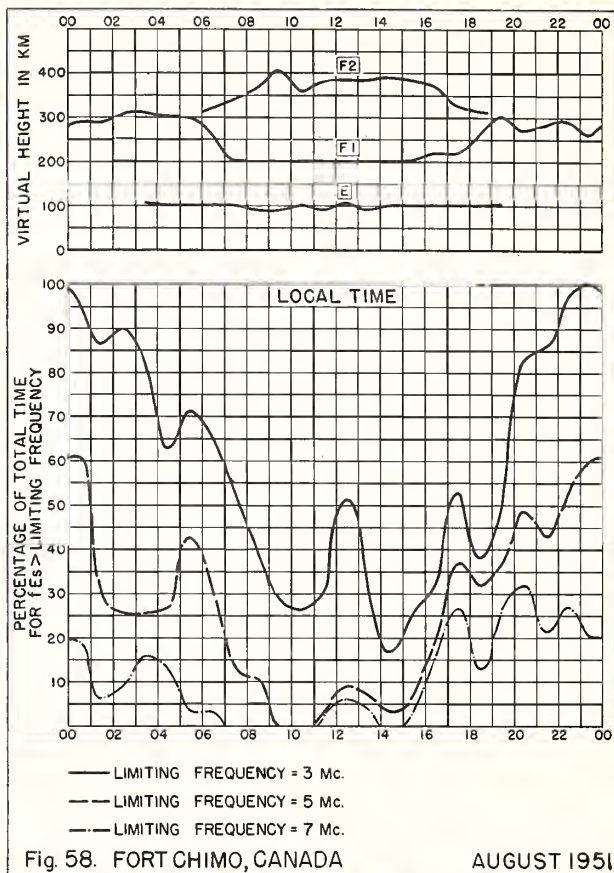


Fig. 58. FORT CHIMO, CANADA

AUGUST 1951

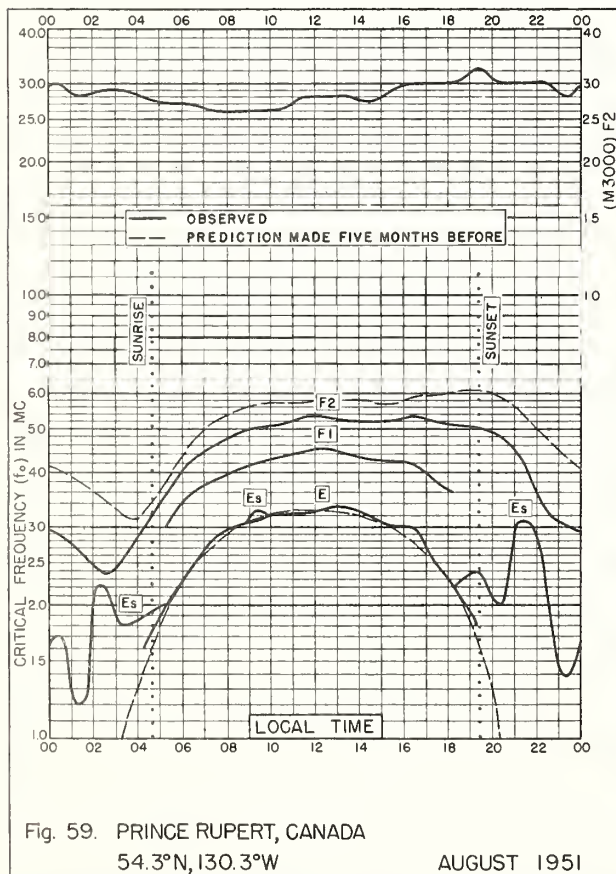


Fig. 59. PRINCE RUPERT, CANADA
54.3°N, 130.3°W

AUGUST 1951

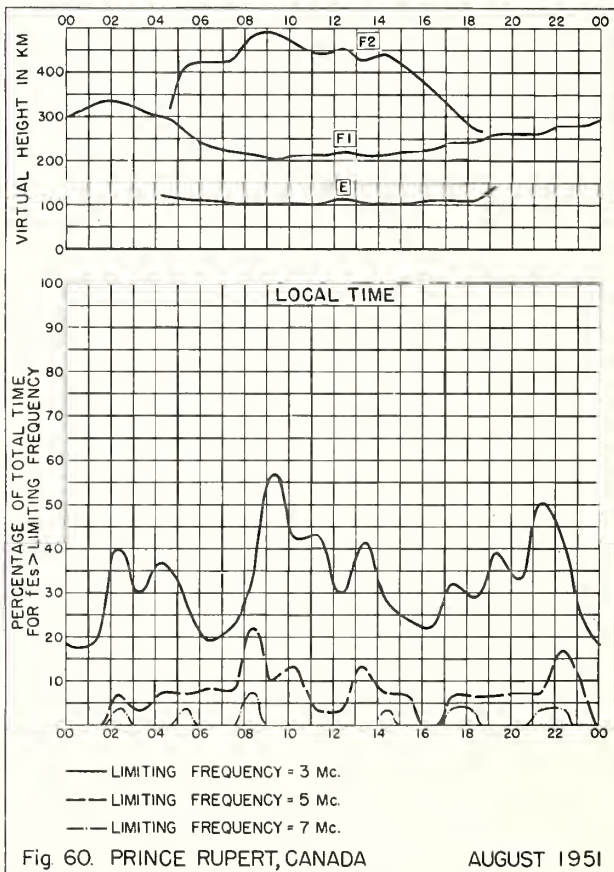


Fig. 60. PRINCE RUPERT, CANADA

AUGUST 1951

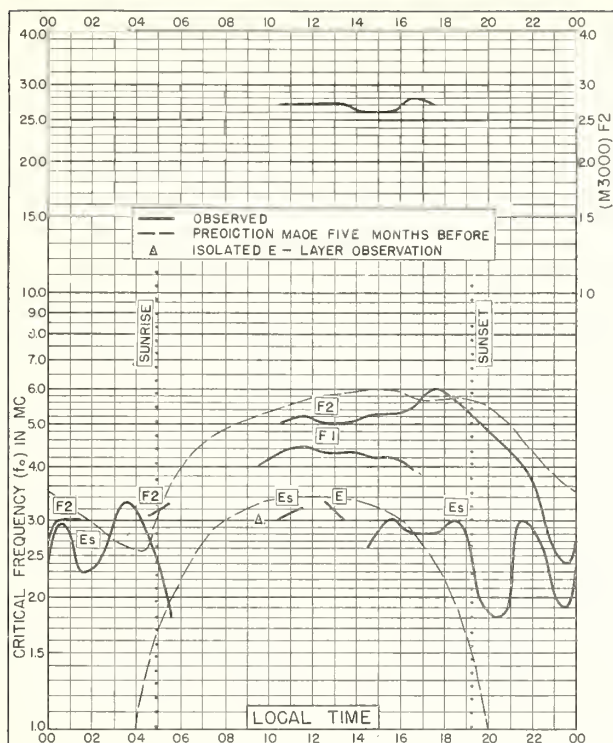


Fig 61. WINNIPEG, CANADA

49.9°N, 97.4°W

AUGUST 1951

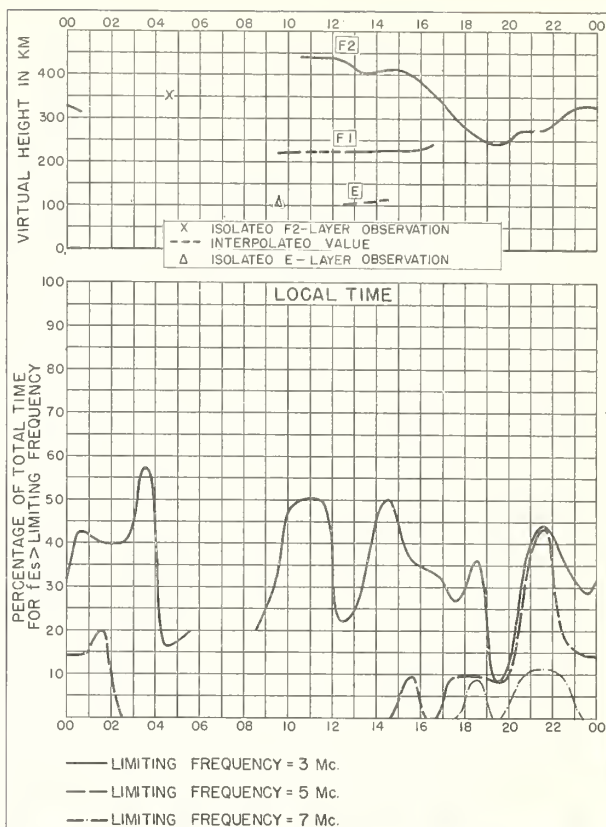


Fig 62. WINNIPEG, CANADA

AUGUST 1951

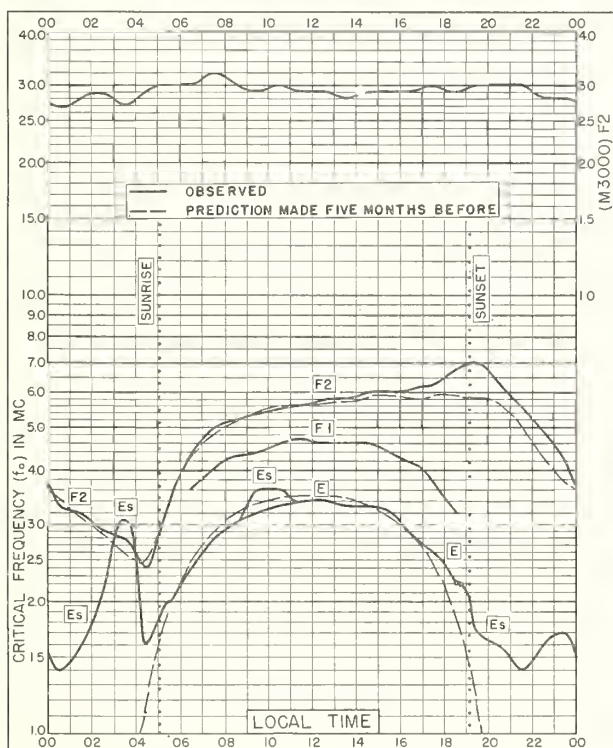


Fig 63. ST. JOHN'S, NEWFOUNDLAND

47.6°N, 52.7°W

AUGUST 1951

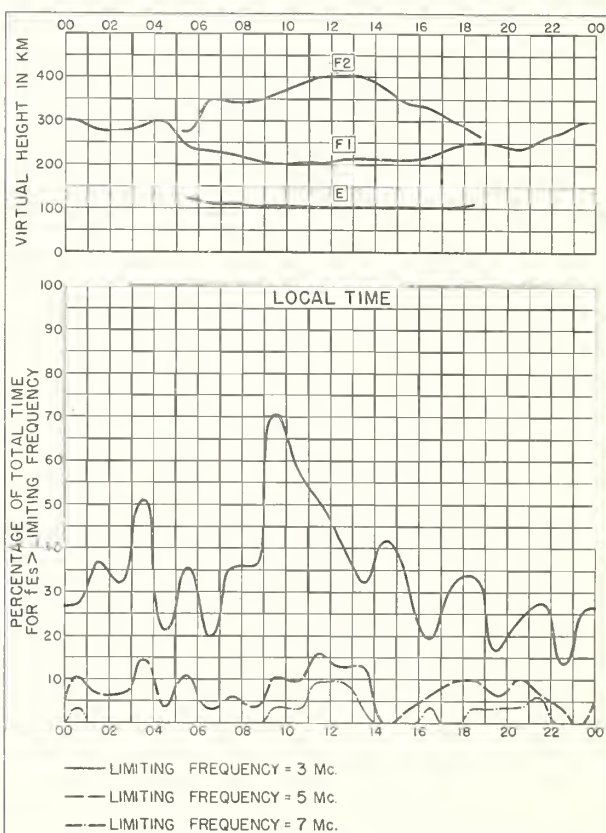


Fig 64. ST. JOHN'S, NEWFOUNDLAND

AUGUST 1951

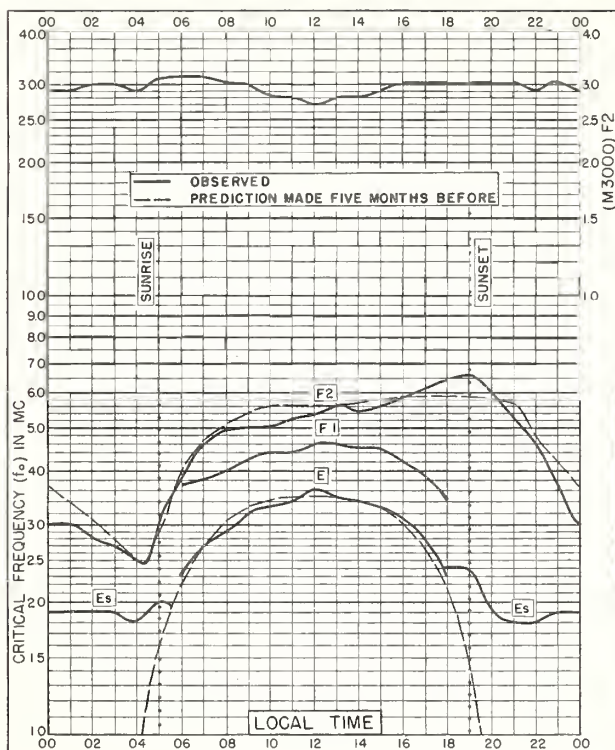


Fig 65 OTTAWA, CANADA
45.4°N, 75.7°W

AUGUST 1951

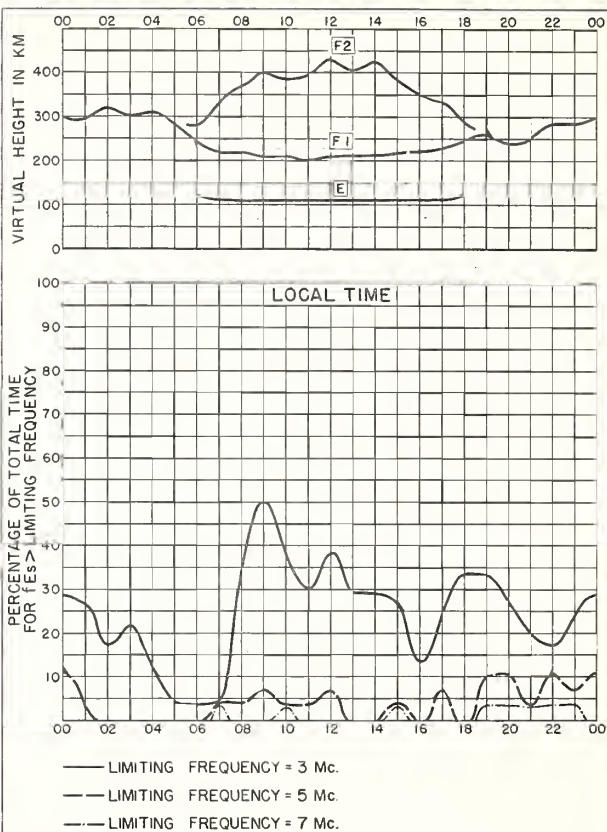


Fig 66 OTTAWA, CANADA

AUGUST 1951

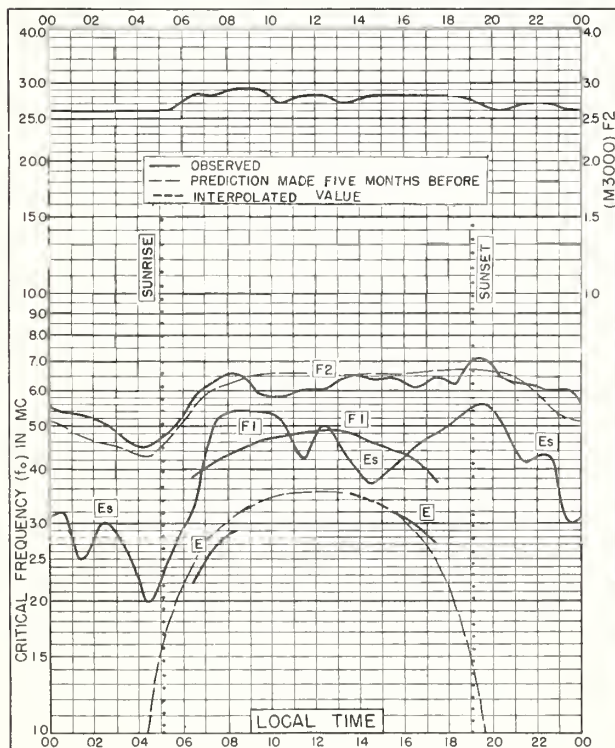


Fig 67 WAKKANAI, JAPAN
45.4°N, 141.7°E

AUGUST 1951

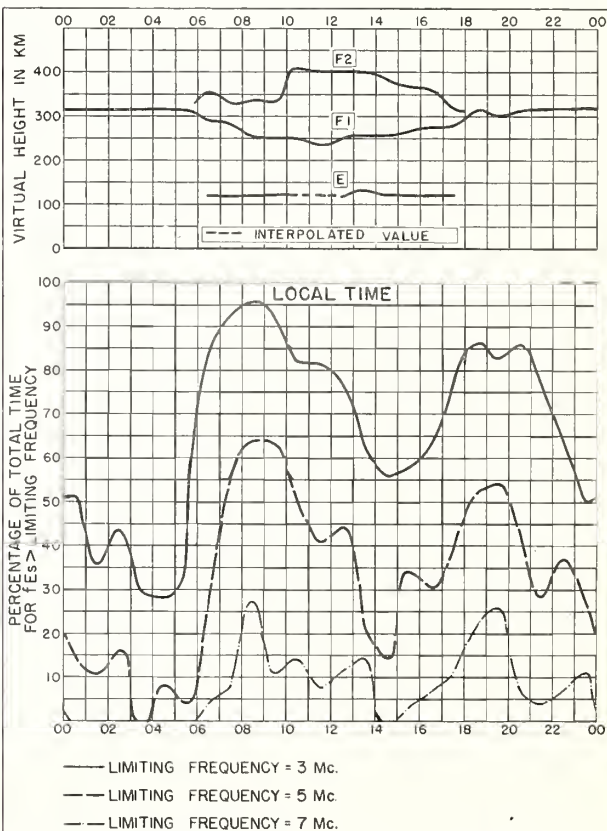


Fig 68 WAKKANAI, JAPAN

AUGUST 1951

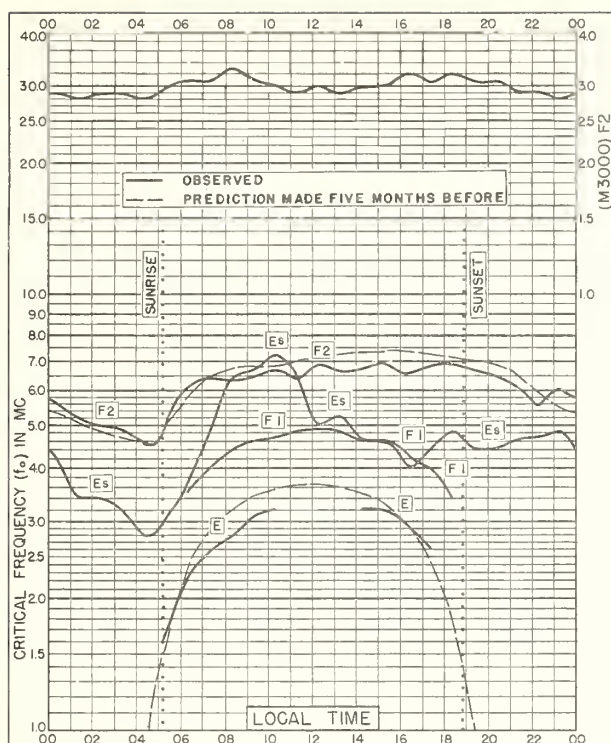


Fig 69. AKITA, JAPAN
39.7°N, 140.1°E

AUGUST 1951

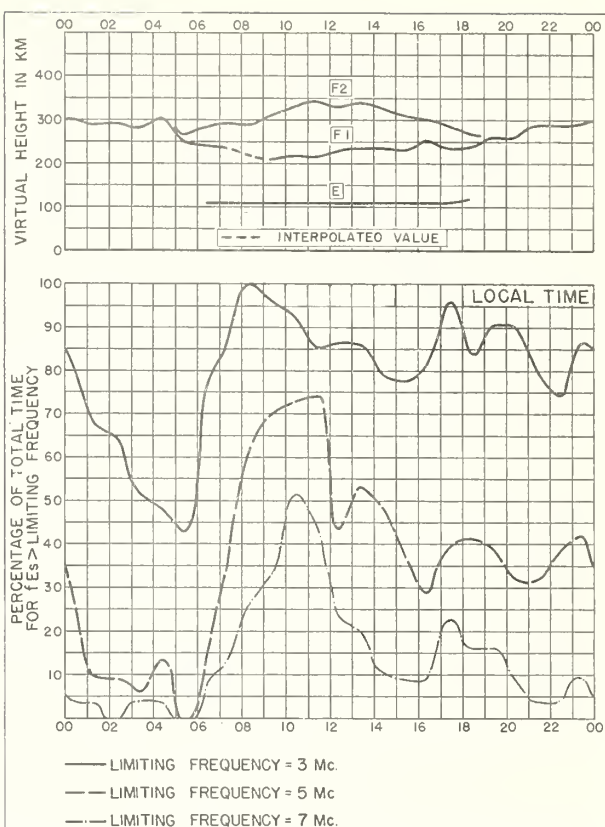


Fig. 70. AKITA, JAPAN

AUGUST 1951

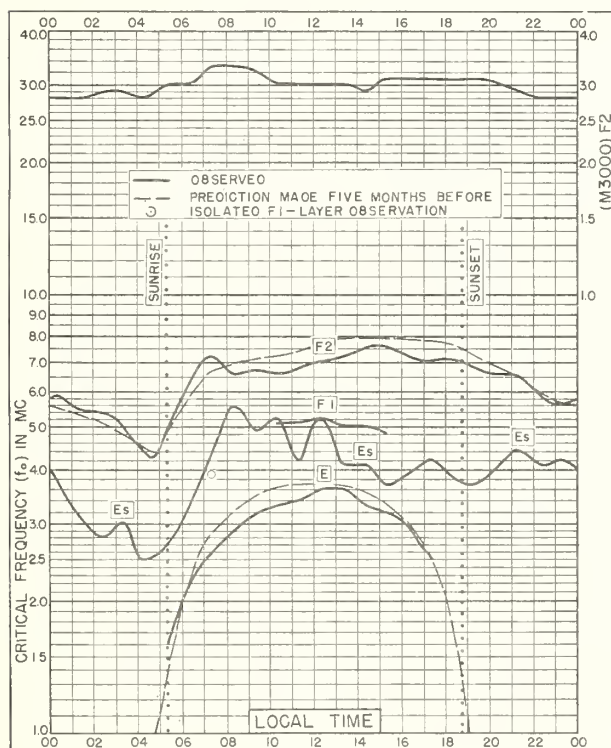


Fig 71. TOKYO, JAPAN
35.7°N, 139.5°E

AUGUST 1951

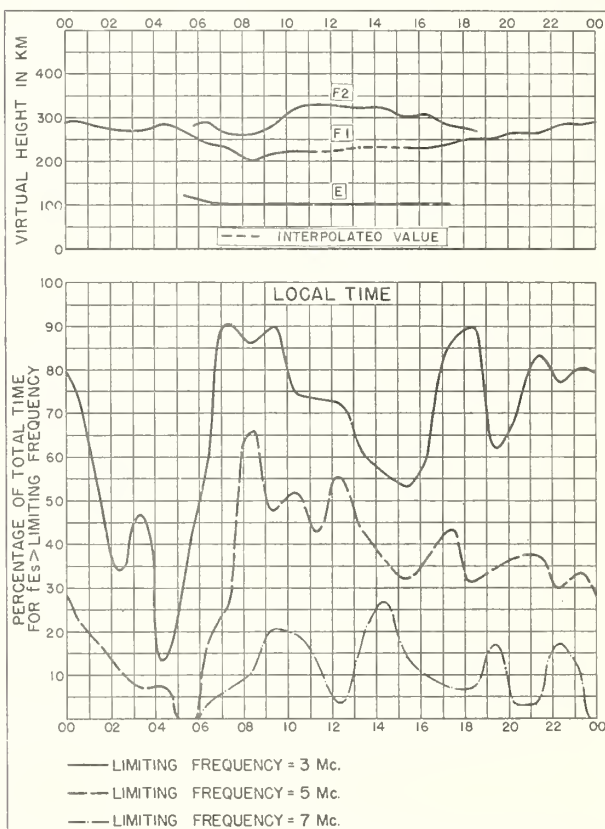


Fig. 72. TOKYO, JAPAN

AUGUST 1951

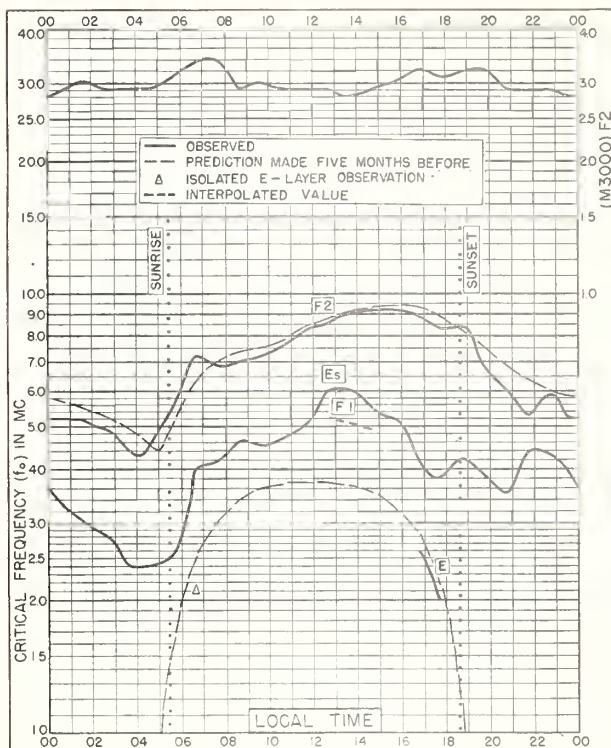


Fig. 73. YAMAGAWA, JAPAN
31.2°N, 130.6°E

AUGUST 1951

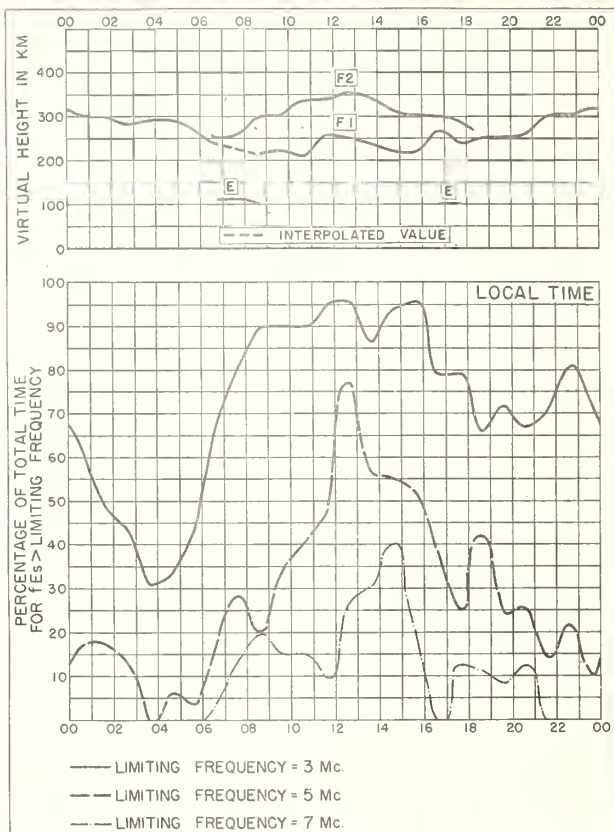


Fig. 74. YAMAGAWA, JAPAN

AUGUST 1951

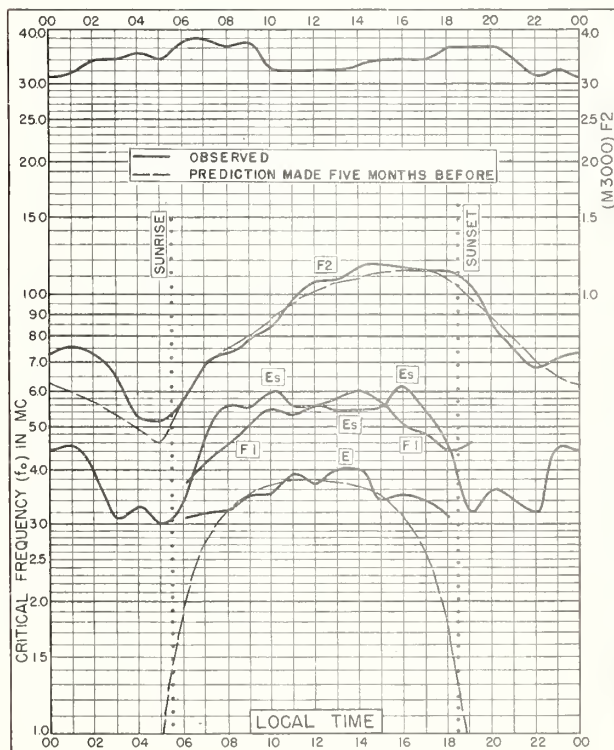


Fig. 75. FORMOSA, CHINA
25.0°N, 121.0°E

AUGUST 1951

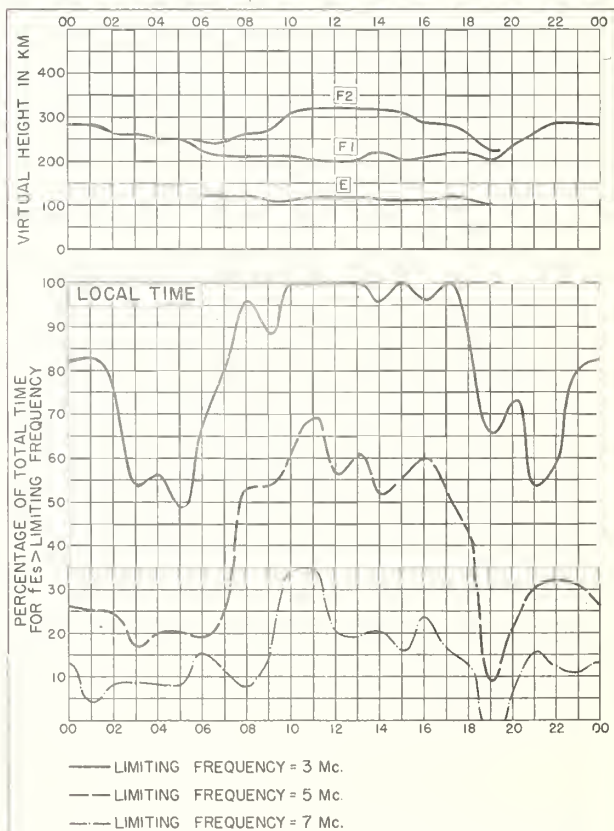


Fig. 76. FORMOSA, CHINA

AUGUST 1951

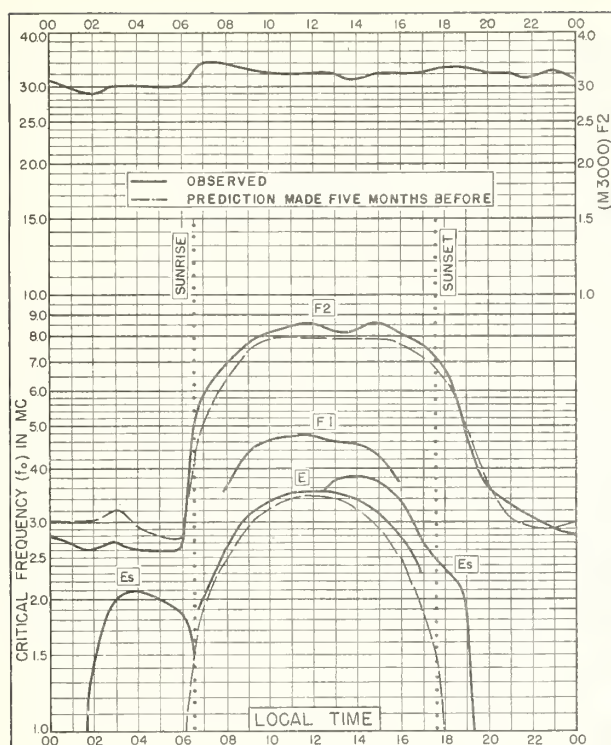


Fig. 77. JOHANNESBURG, U. OF S. AFRICA
26.2°S, 28.1°E AUGUST 1951

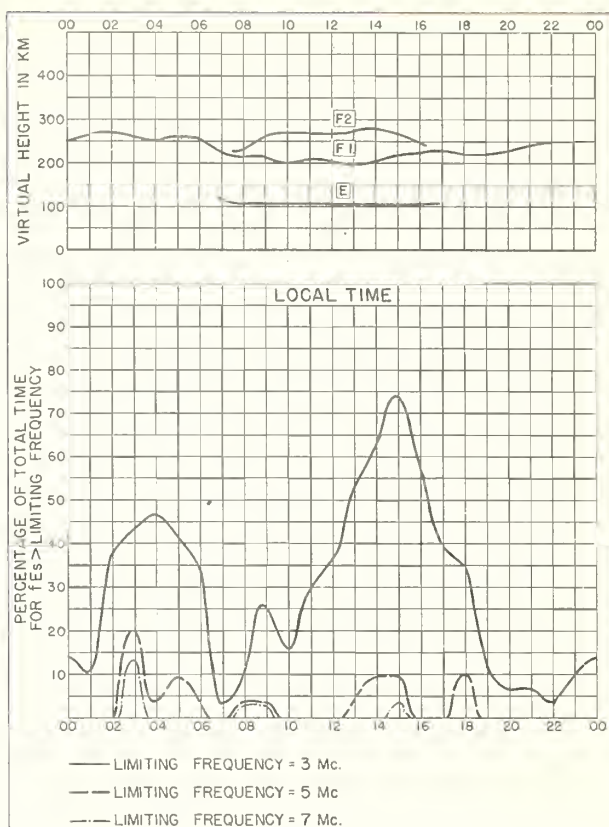


Fig. 78. JOHANNESBURG, U. OF S. AFRICA AUGUST 1951

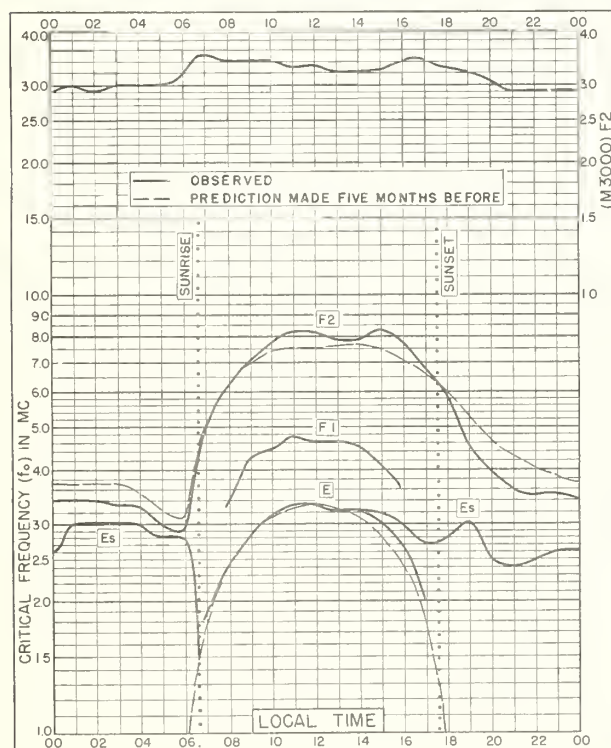


Fig. 79. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E AUGUST 1951

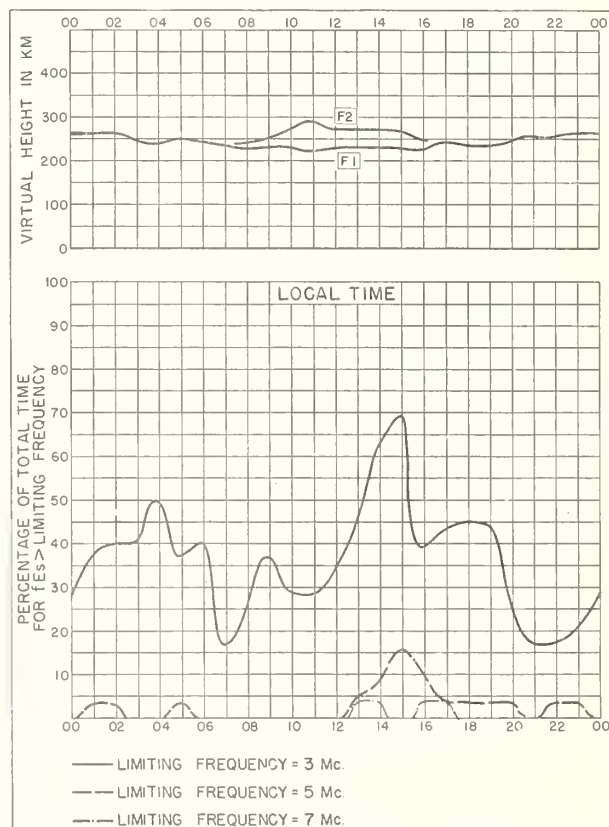


Fig. 80. WATHEROO, W. AUSTRALIA AUGUST 1951

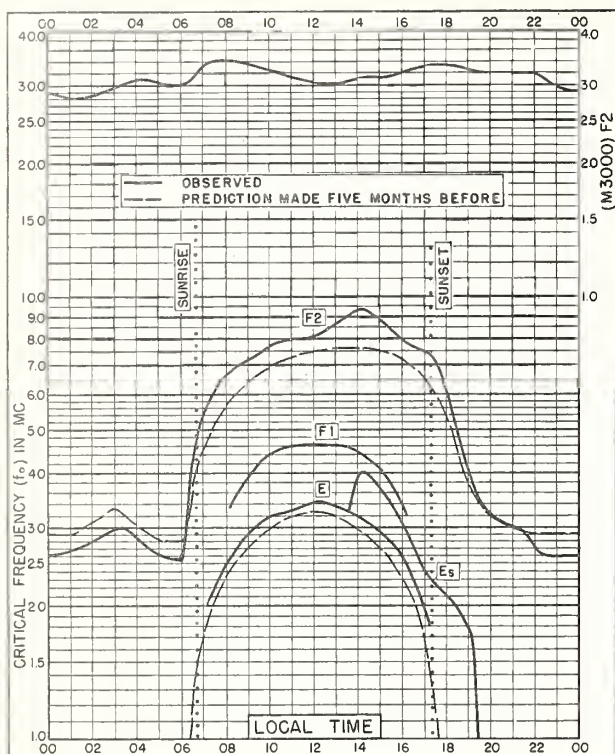


Fig. 81. CAPETOWN, U. OF S. AFRICA
34.2°S, 18.3°E

AUGUST 1951

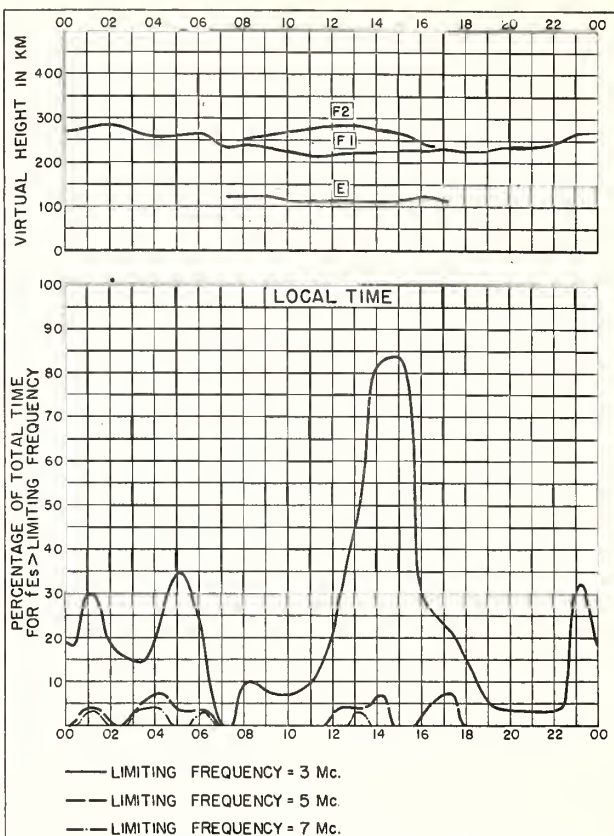


Fig. 82. CAPETOWN, U. OF S. AFRICA

AUGUST 1951

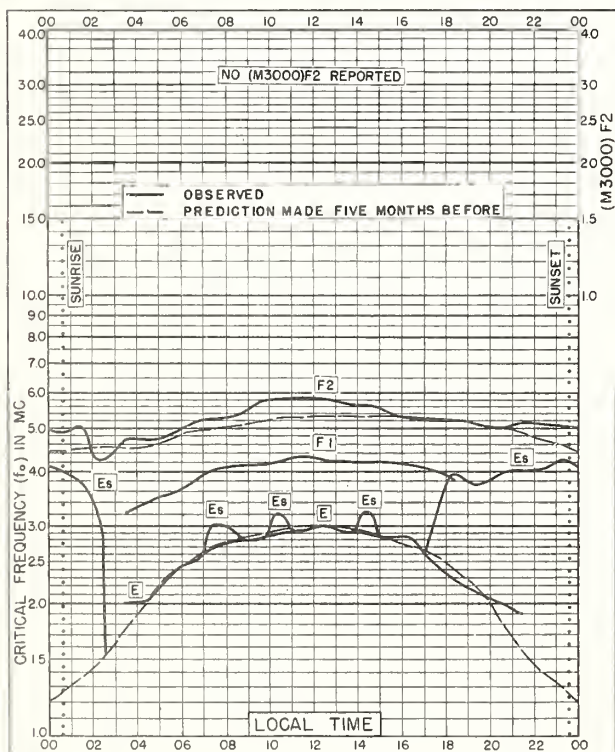


Fig. 83. KIRUNA, SWEDEN
67.8°N, 20.5°E

JULY 1951

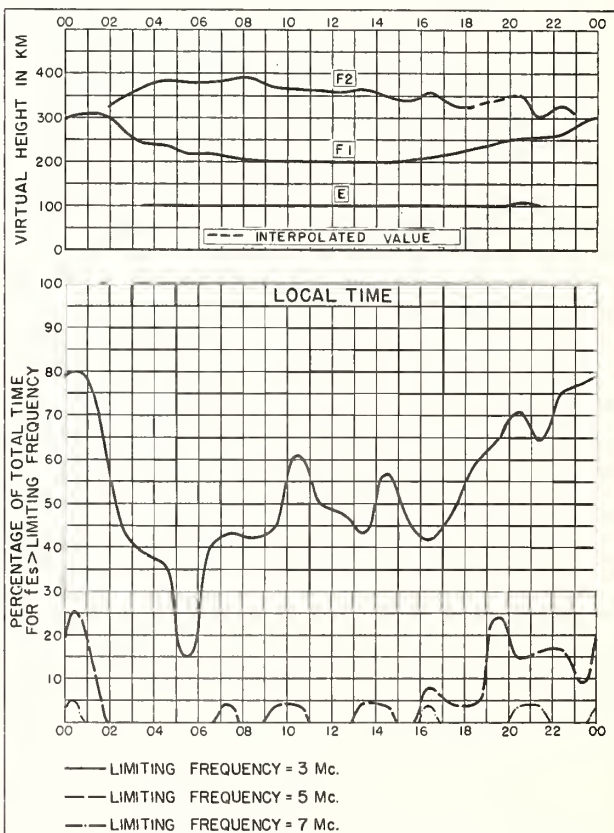


Fig. 84. KIRUNA, SWEDEN

JULY 1951

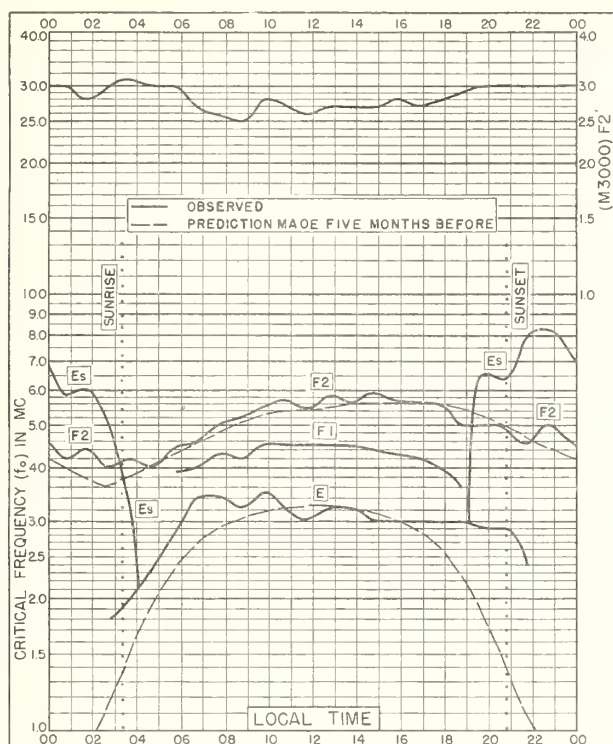


Fig 85. CHURCHILL, CANADA
58.8°N, 94.2°W

JULY 1951

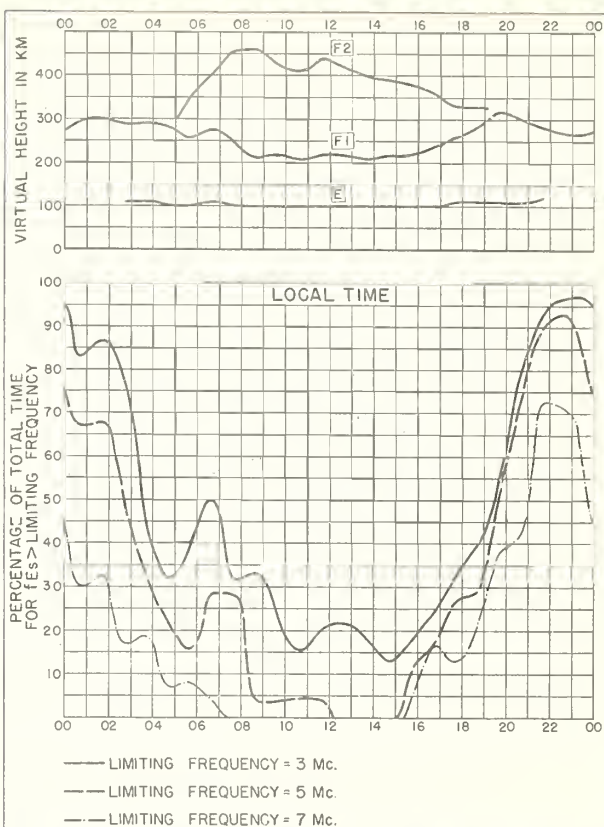


Fig 86. CHURCHILL, CANADA

JULY 1951

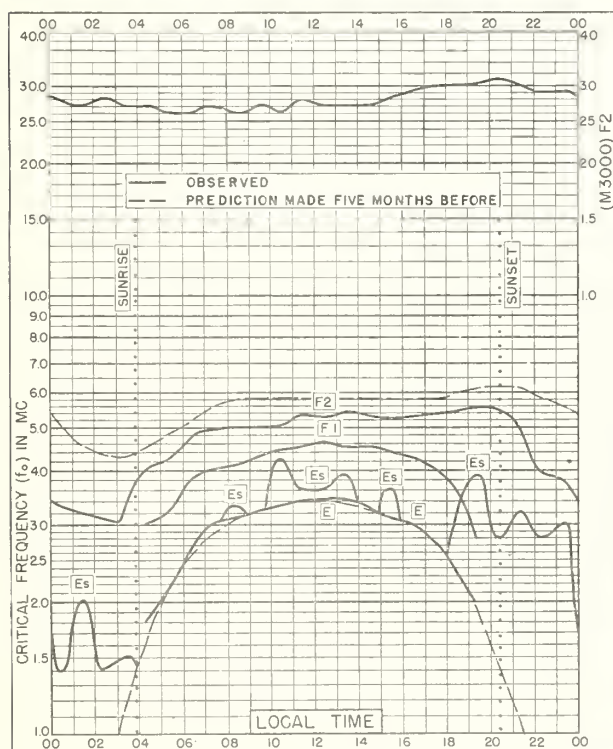


Fig 87. PRINCE RUPERT, CANADA
54.3°N, 130.3°W

JULY 1951

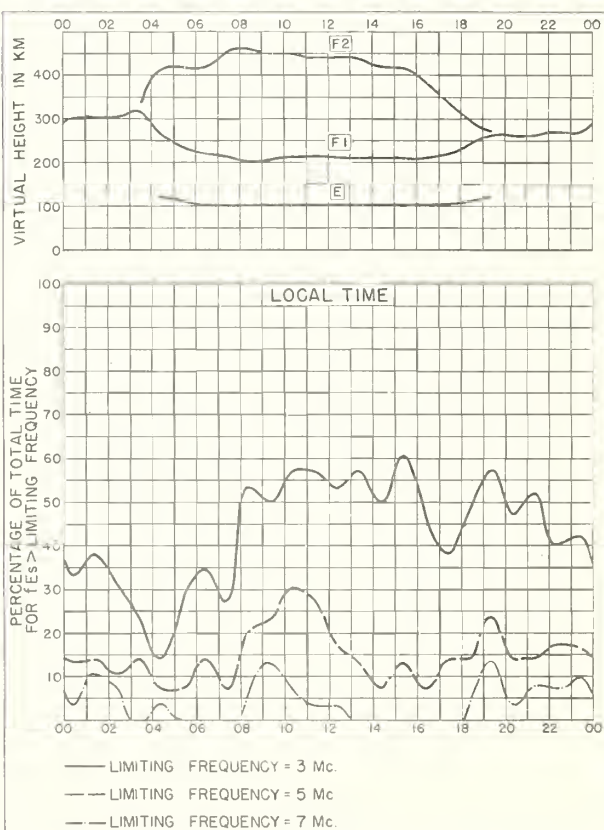
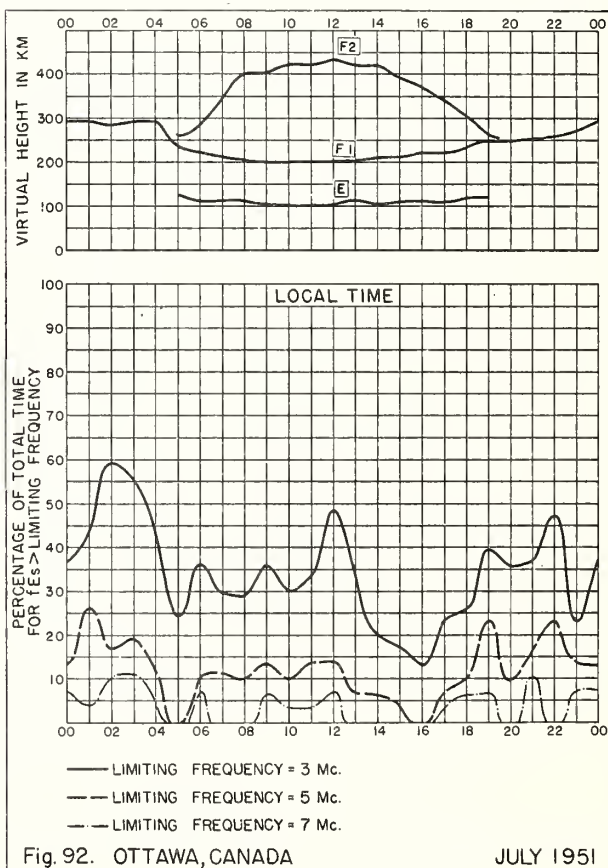
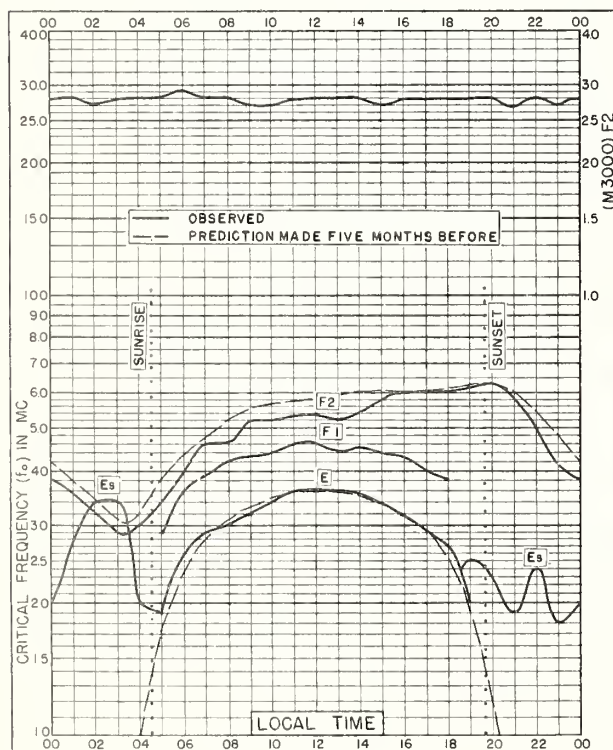
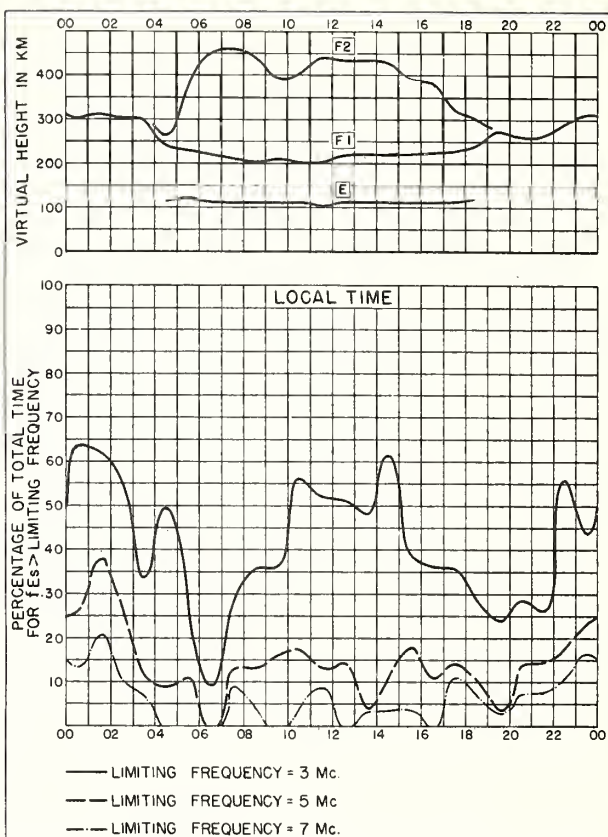
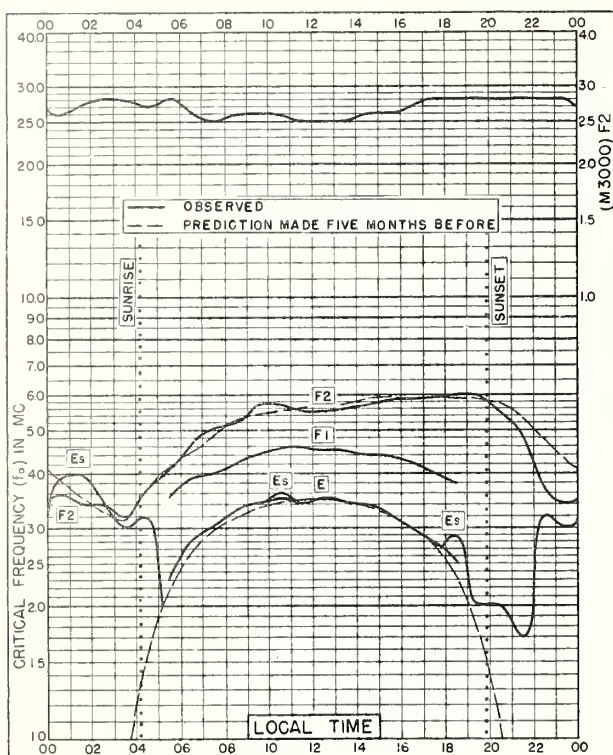
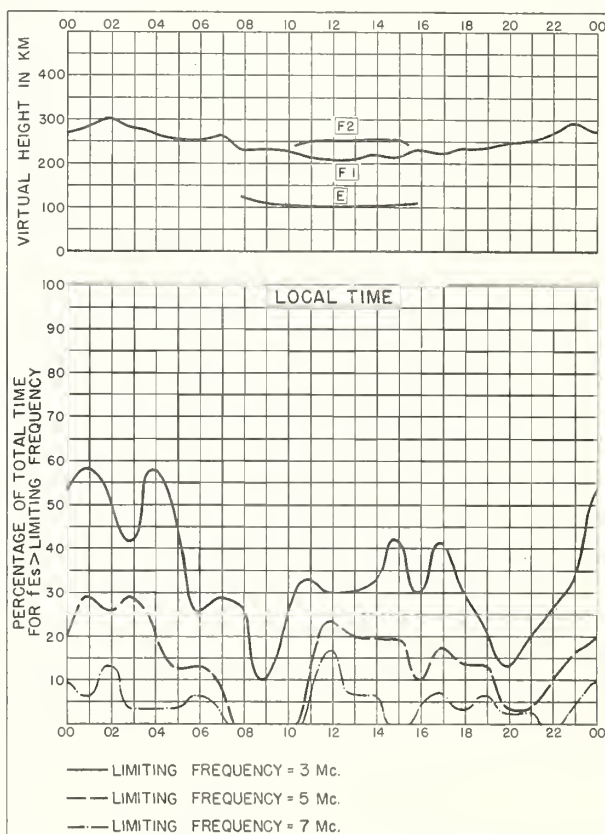
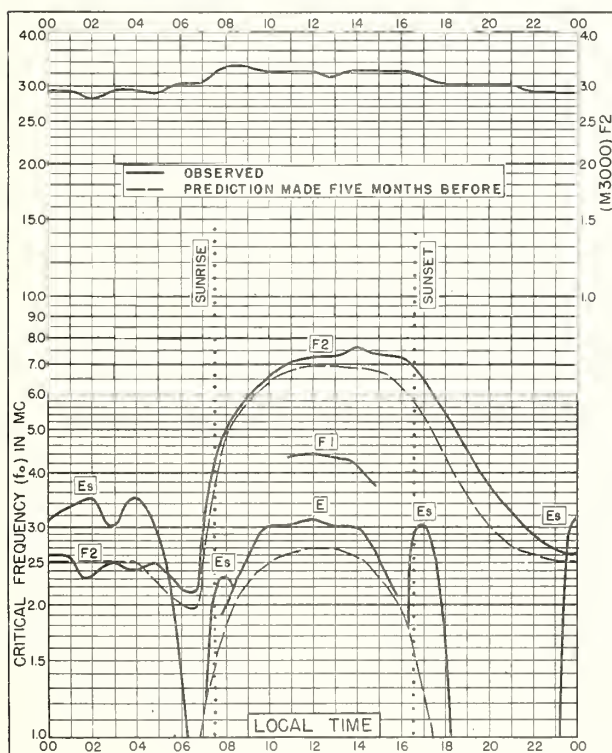
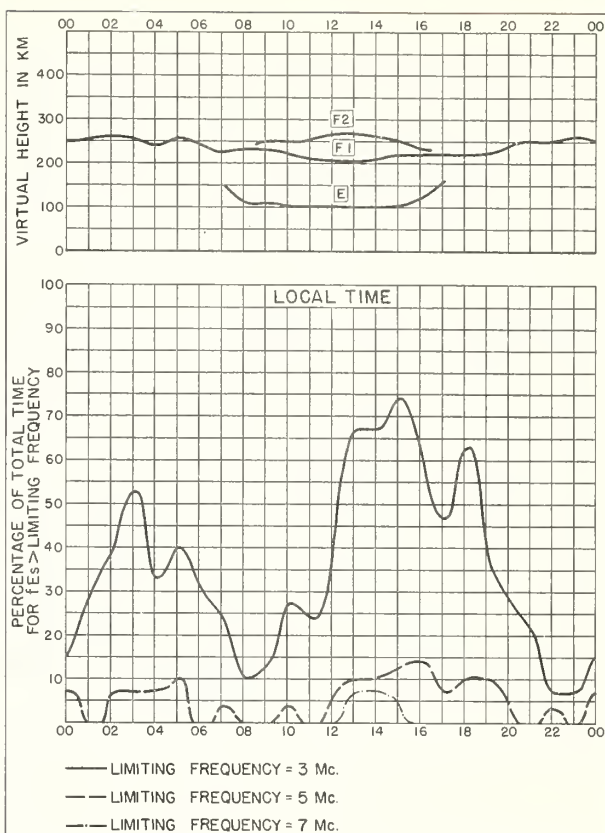
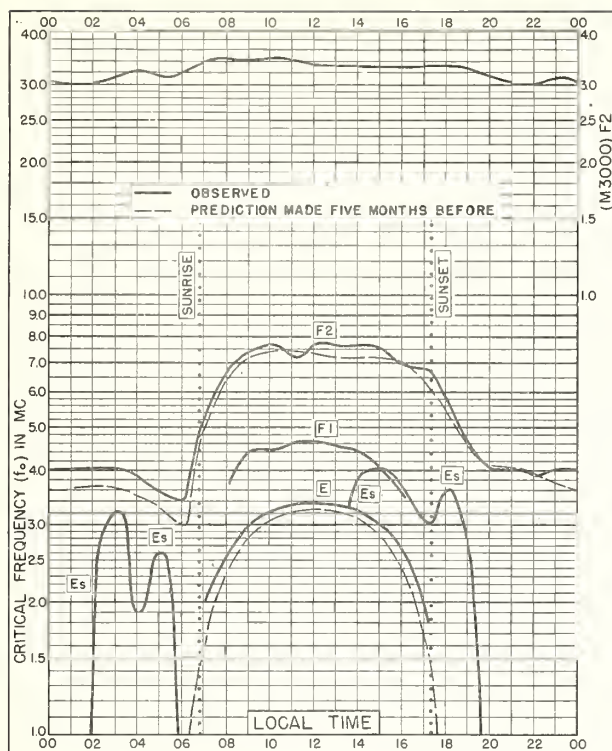


Fig 88. PRINCE RUPERT, CANADA

JULY 1951





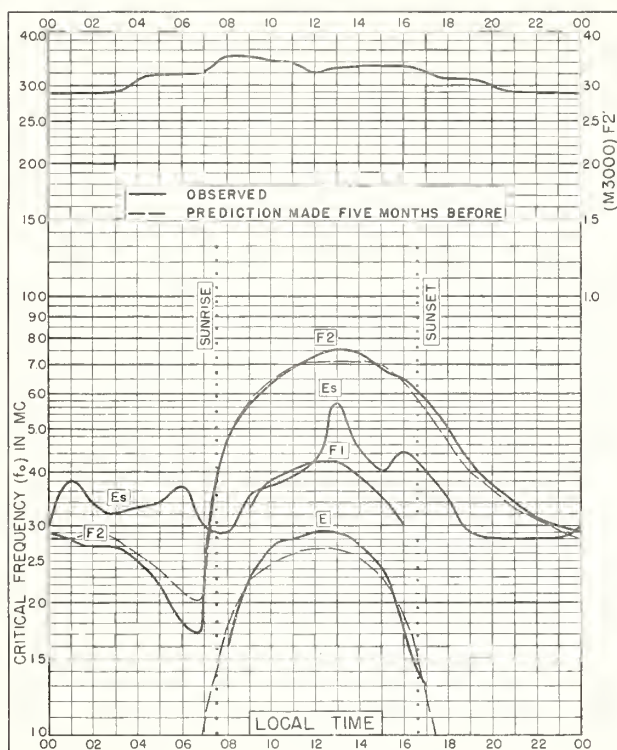


Fig. 97. CHRISTCHURCH, N.Z.
43.6°S, 172.7°E

JULY 1951

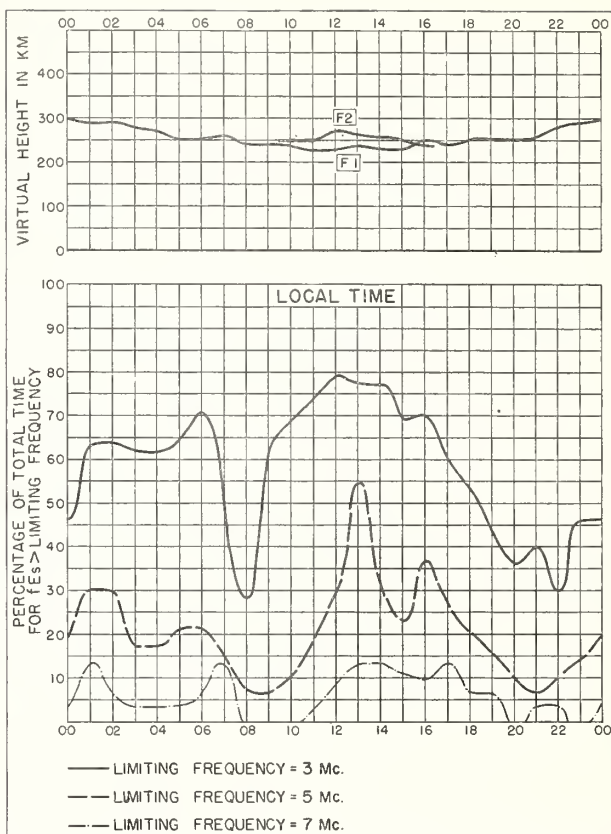


Fig. 98. CHRISTCHURCH, N.Z.

JULY 1951

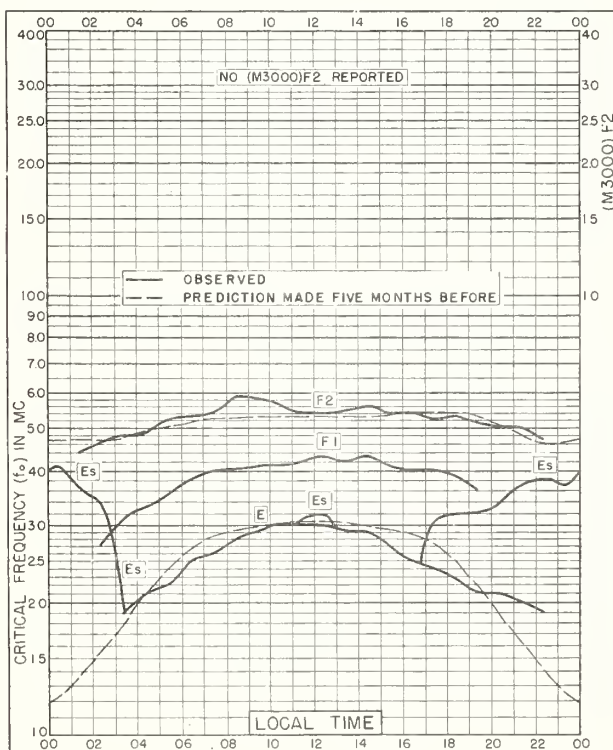


Fig. 99. KIRUNA, SWEDEN
67.8°N, 20.5°E

JUNE 1951

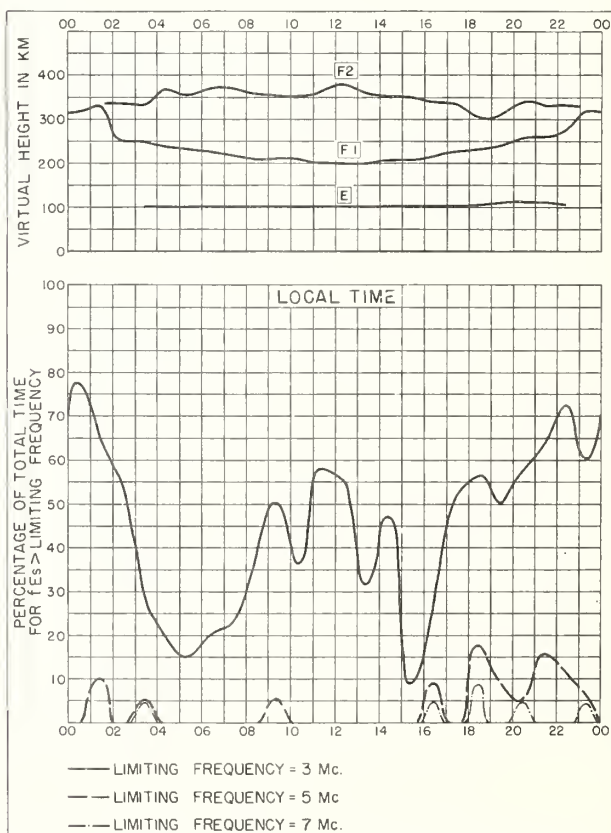


Fig. 100. KIRUNA, SWEDEN

JUNE 1951

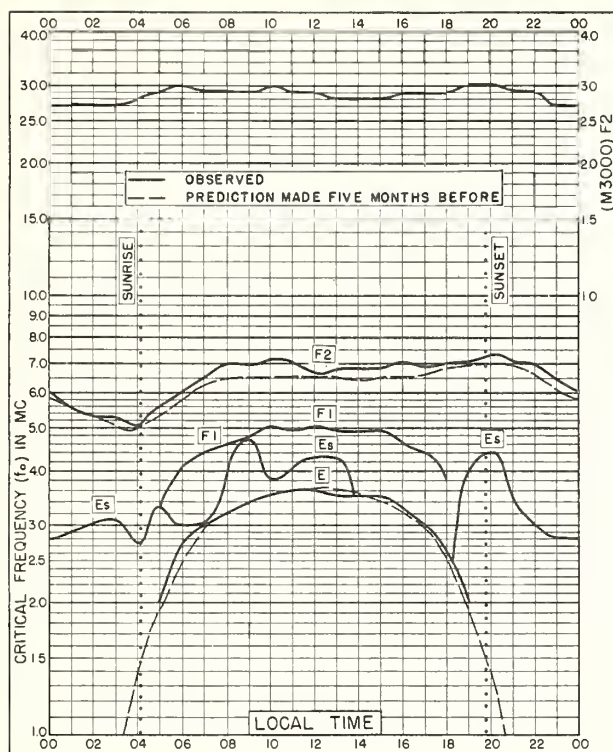


Fig. 101. FRIBOURG, GERMANY
48.1°N, 7.8°E

JUNE 1951

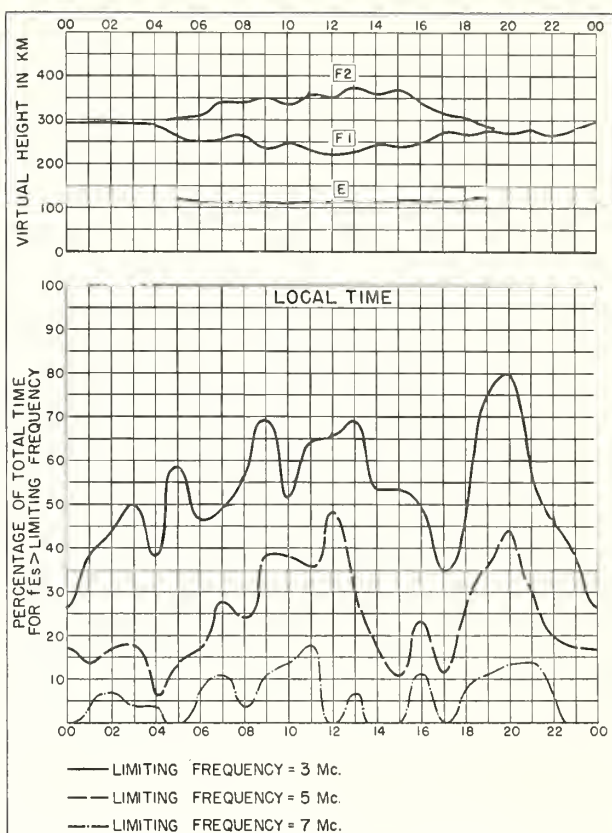


Fig. 102. FRIBOURG, GERMANY

JUNE 1951

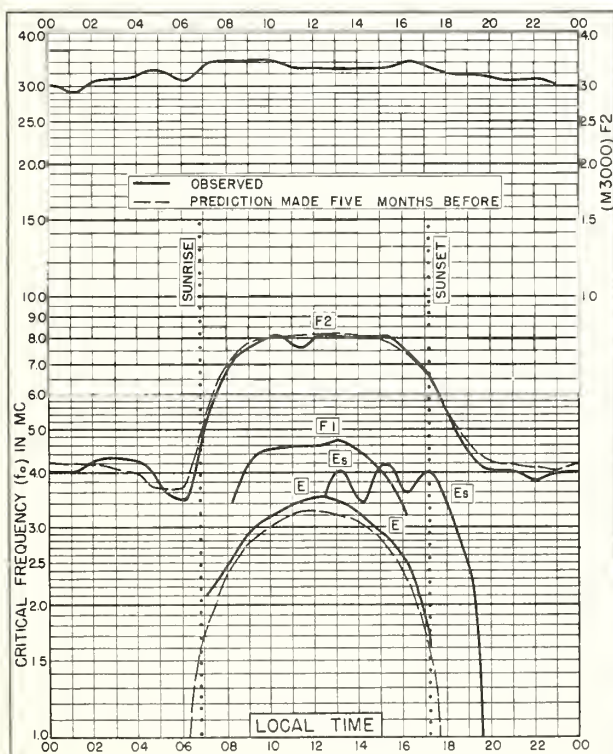


Fig. 103. BRISBANE, AUSTRALIA
27.5°S, 153.0°E

JUNE 1951

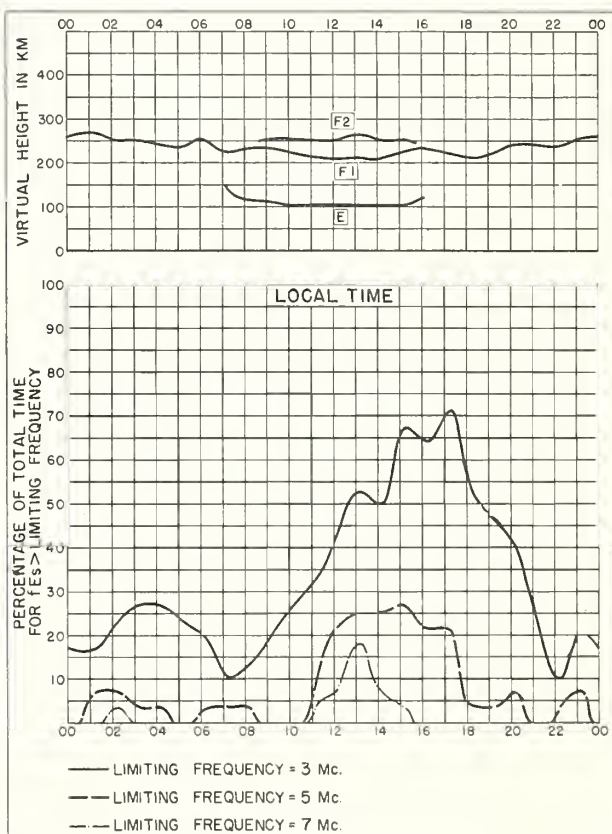


Fig. 104. BRISBANE, AUSTRALIA

JUNE 1951

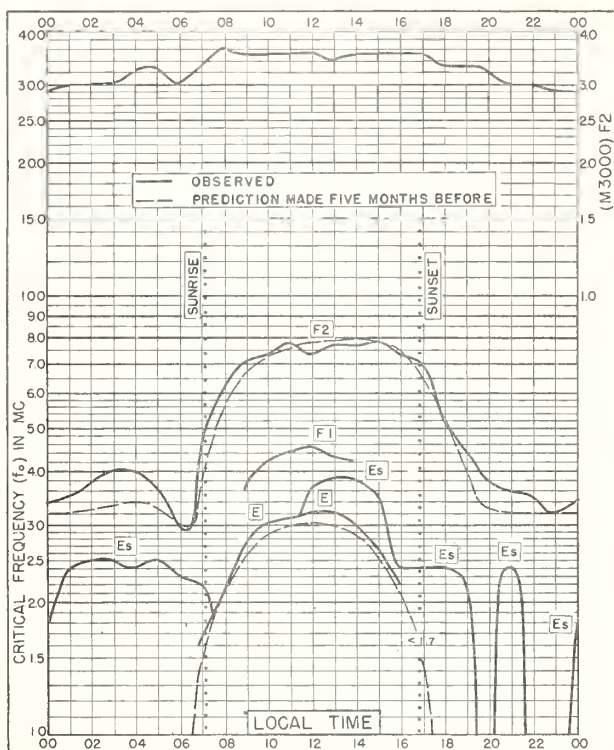


Fig. 105. CANBERRA, AUSTRALIA
35.3°S, 149.0°E

JUNE 1951

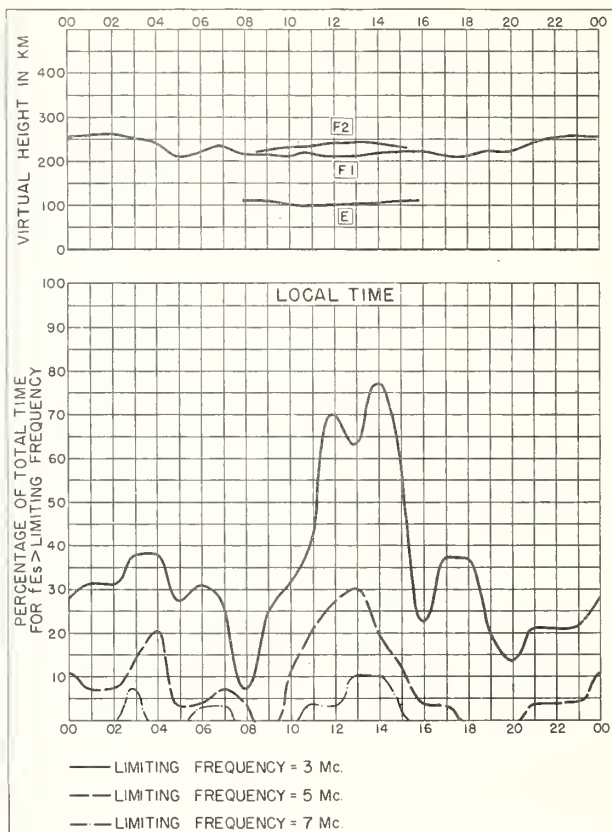


Fig. 106. CANBERRA, AUSTRALIA

JUNE 1951

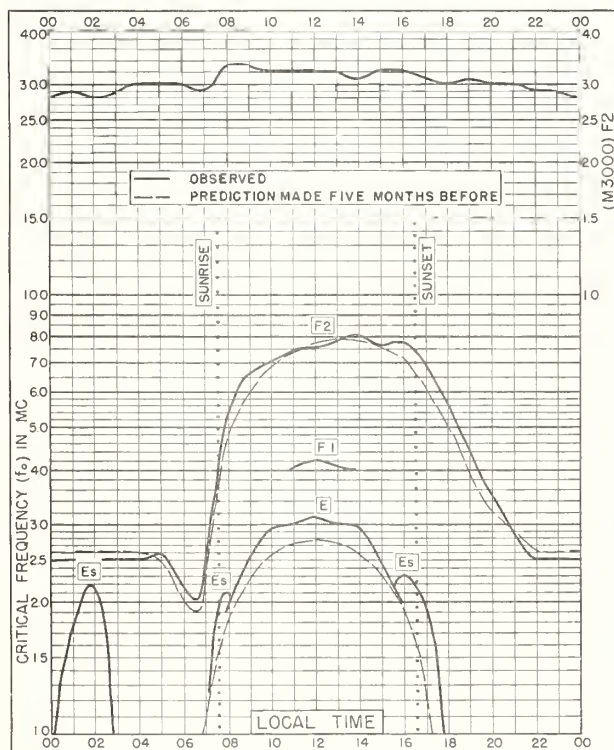


Fig. 107. HOBART, TASMANIA
42.8°S, 147.4°E

JUNE 1951

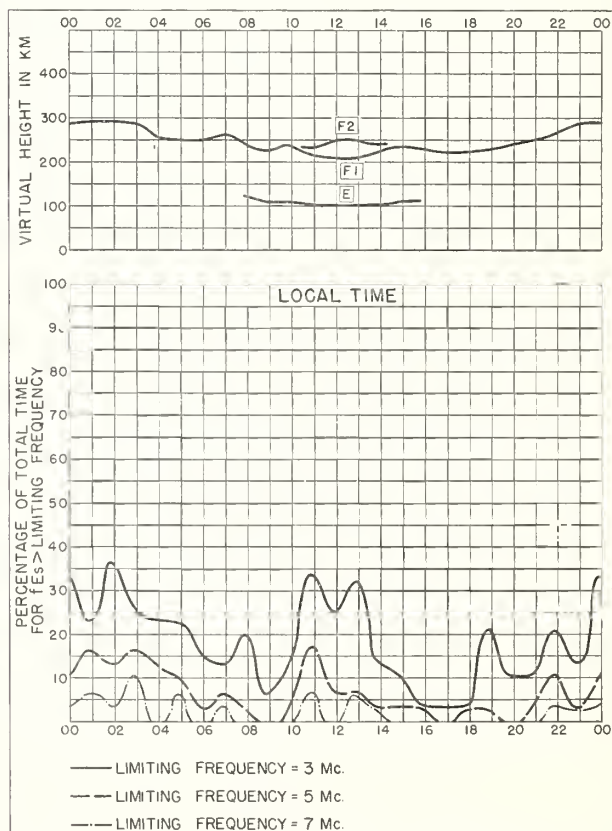


Fig. 108. HOBART, TASMANIA

JUNE 1951

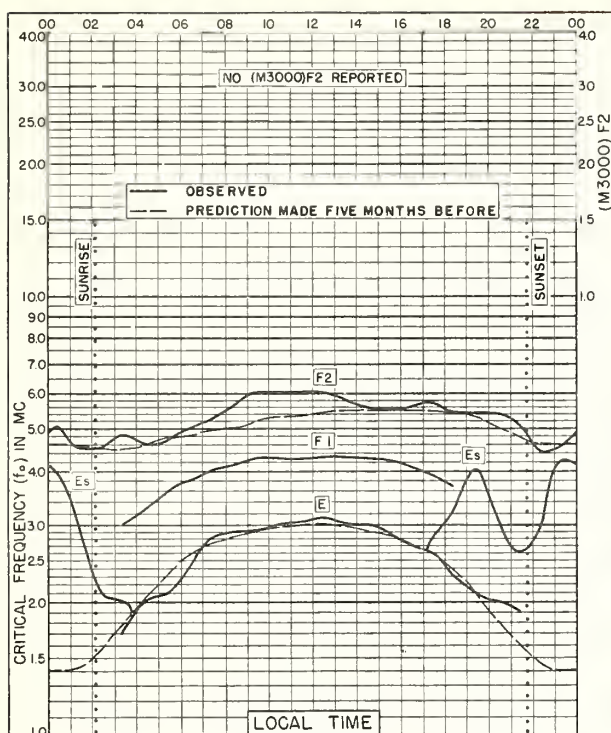


Fig. 109. KIRUNA, SWEDEN
67.8°N, 20.5°E

MAY 1951

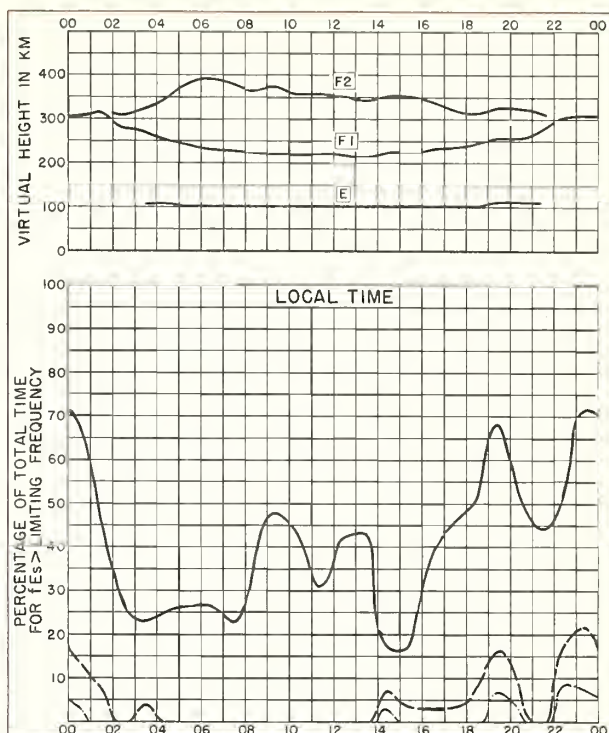


Fig. 110. KIRUNA, SWEDEN

MAY 1951

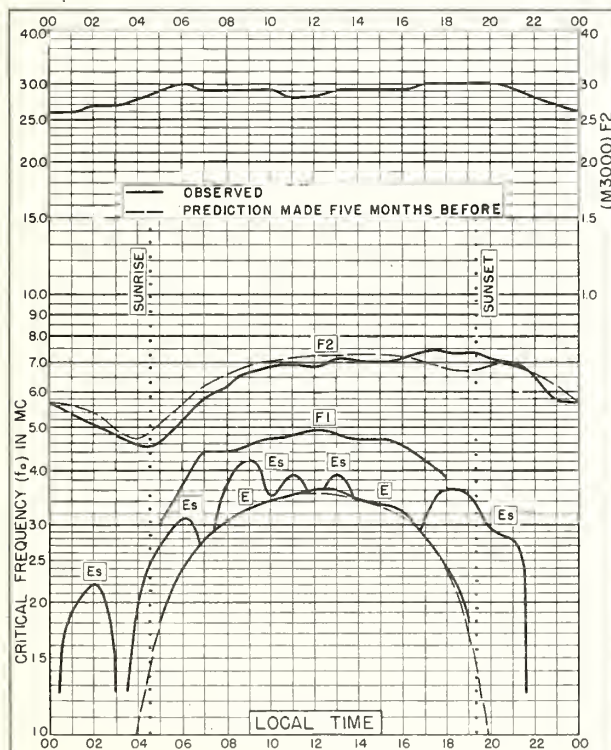


Fig. 111. FRIBOURG, GERMANY
48.1°N, 7.8°E

MAY 1951

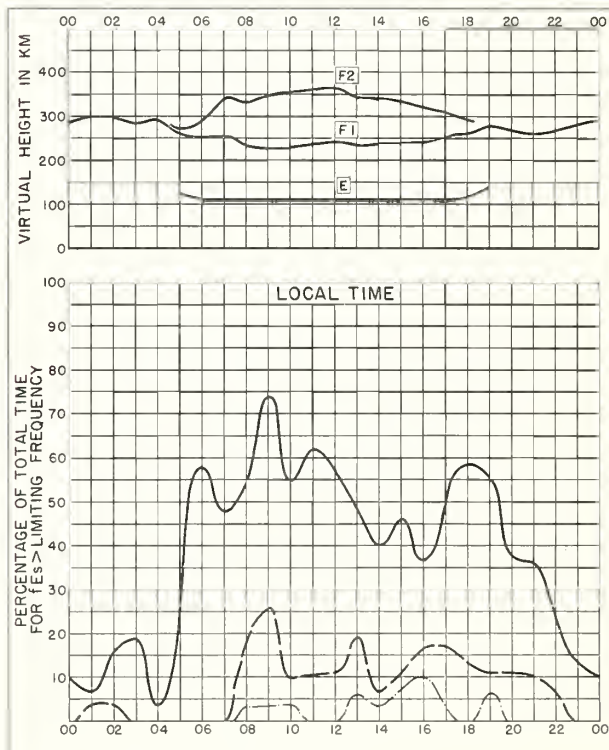


Fig. 112. FRIBOURG, GERMANY

MAY 1951

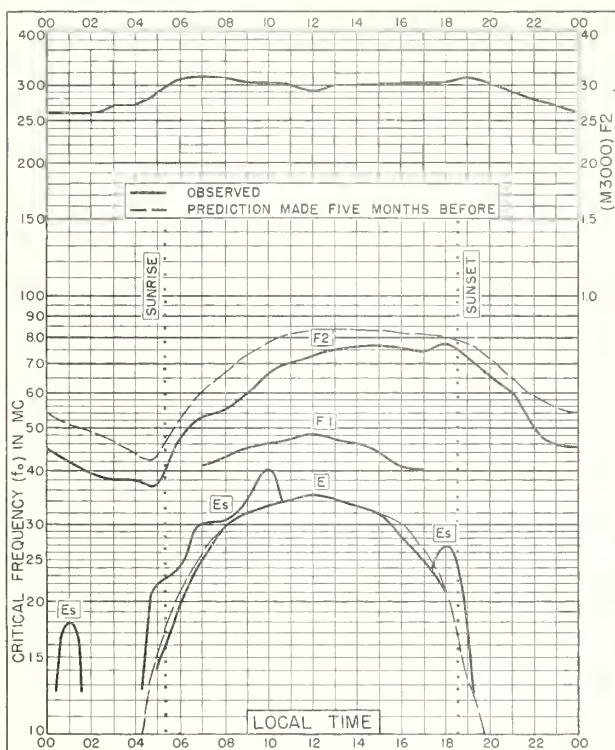


Fig 113. FRIBOURG, GERMANY
48.1°N, 7.8°E

APRIL 1951

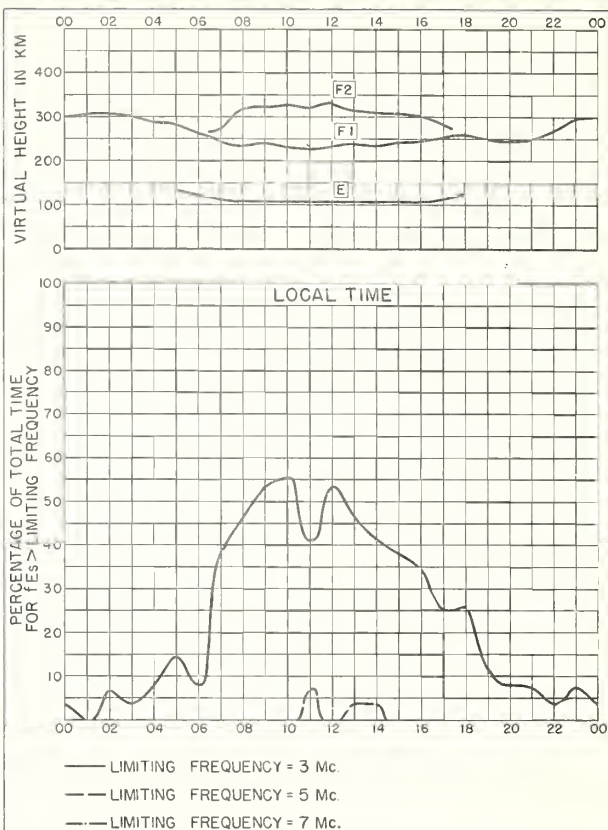


Fig 114. FRIBOURG, GERMANY

APRIL 1951

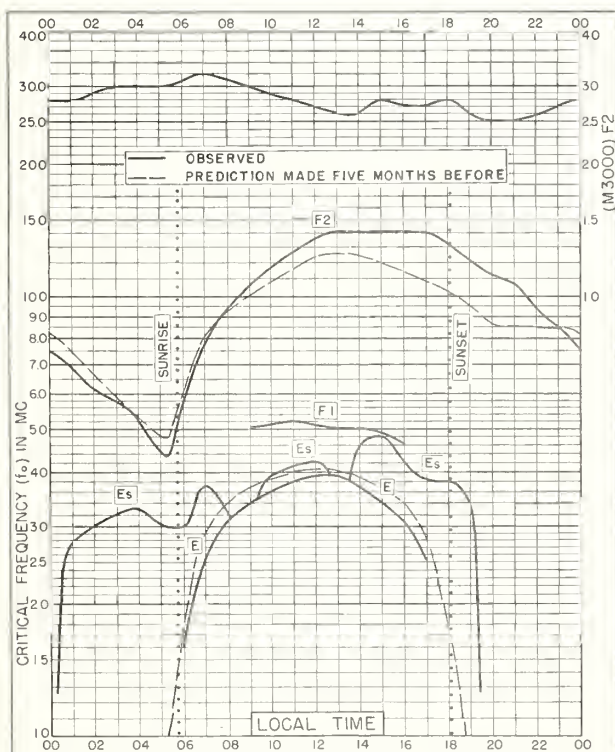


Fig 115. DAKAR, FRENCH W. AFRICA
14.6°N, 17.4°W

APRIL 1951

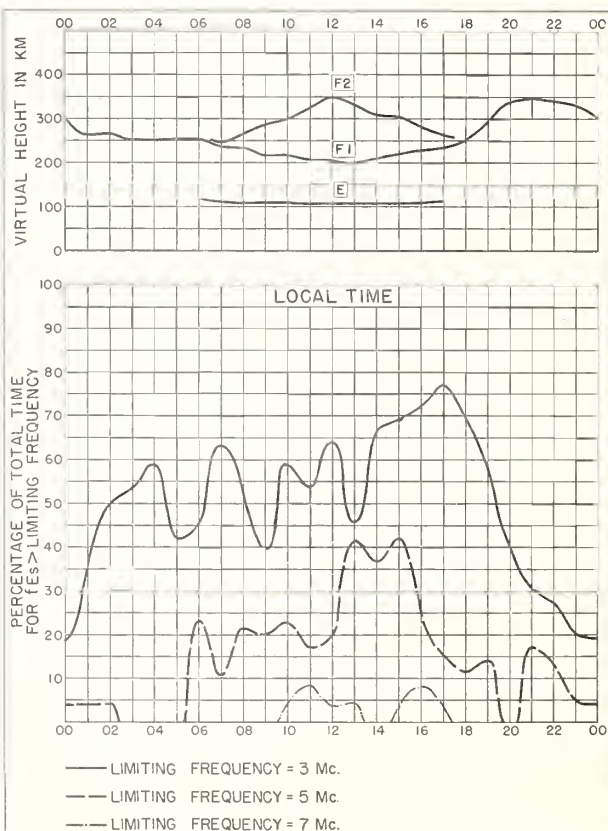


Fig 116. DAKAR, FRENCH W. AFRICA

APRIL 1951

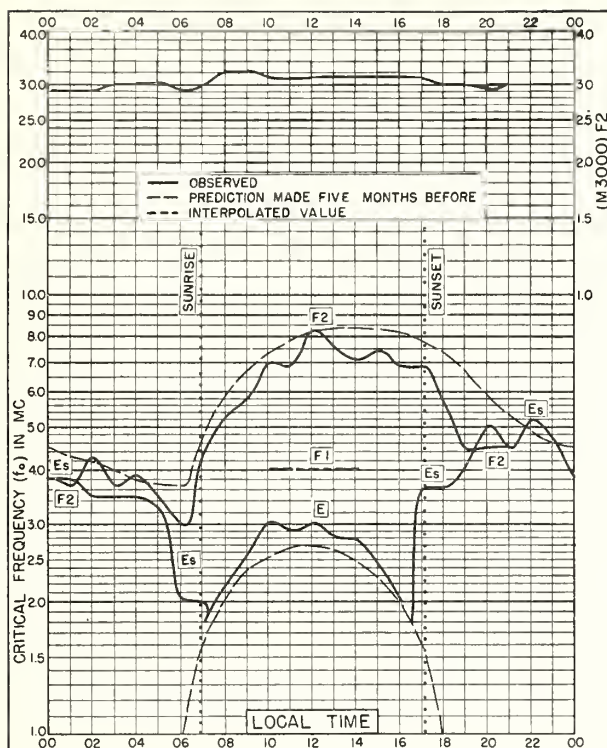


Fig. 117. MACQUARIE I.

54.5°S, 159.0°E

APRIL 1951

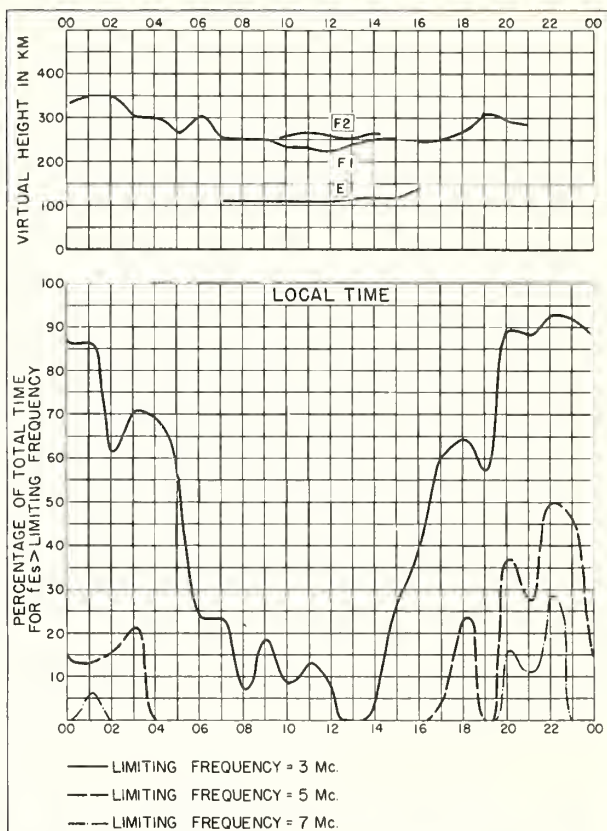


Fig. 118. MACQUARIE I.

APRIL 1951

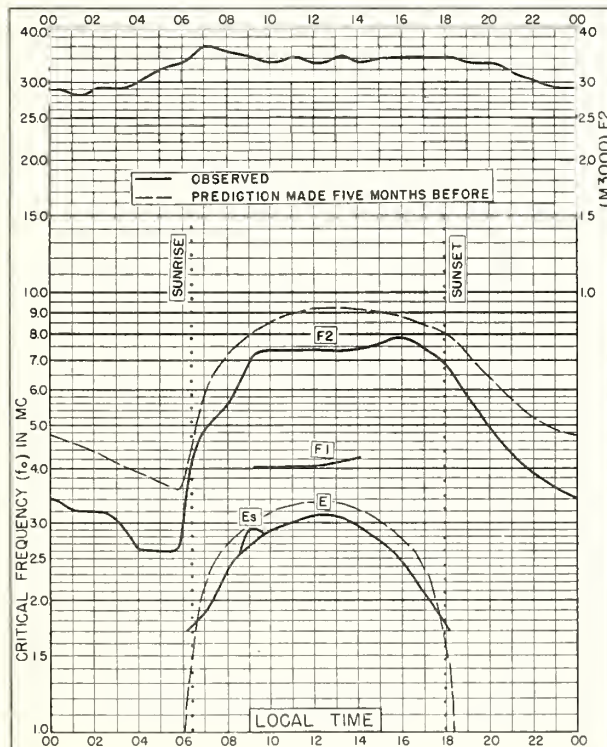


Fig. 119. DOMONT, FRANCE

49.0°N, 2.3°E

MARCH 1951

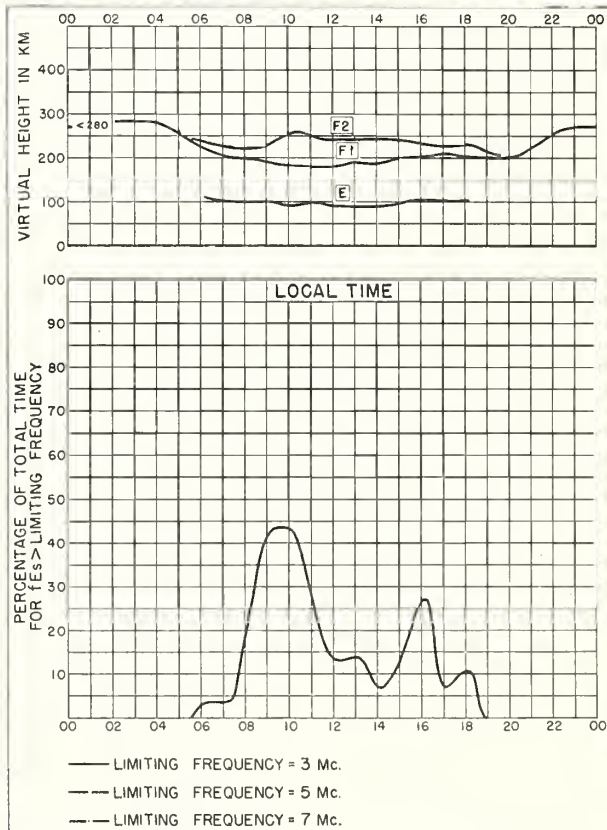


Fig. 120. DOMONT, FRANCE

MARCH 1951

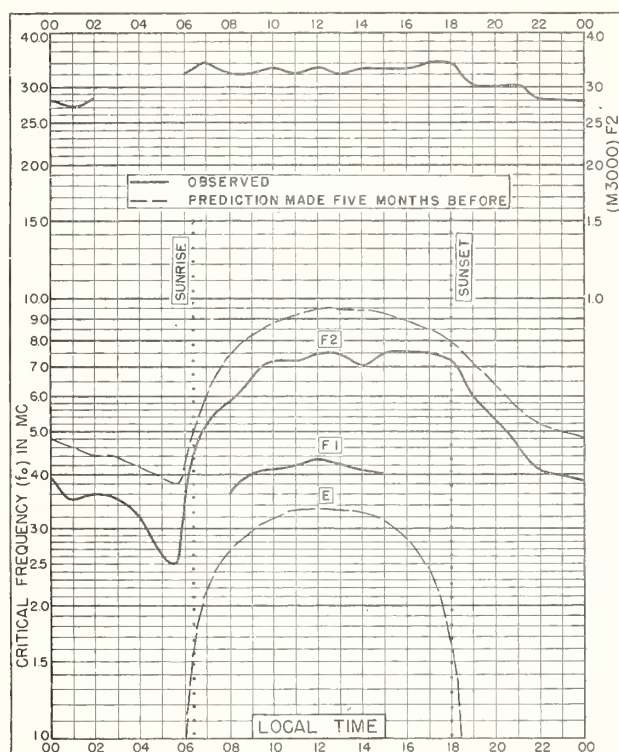


Fig. 121. POITIERS, FRANCE

46.6°N, 0.3°E

MARCH 1951

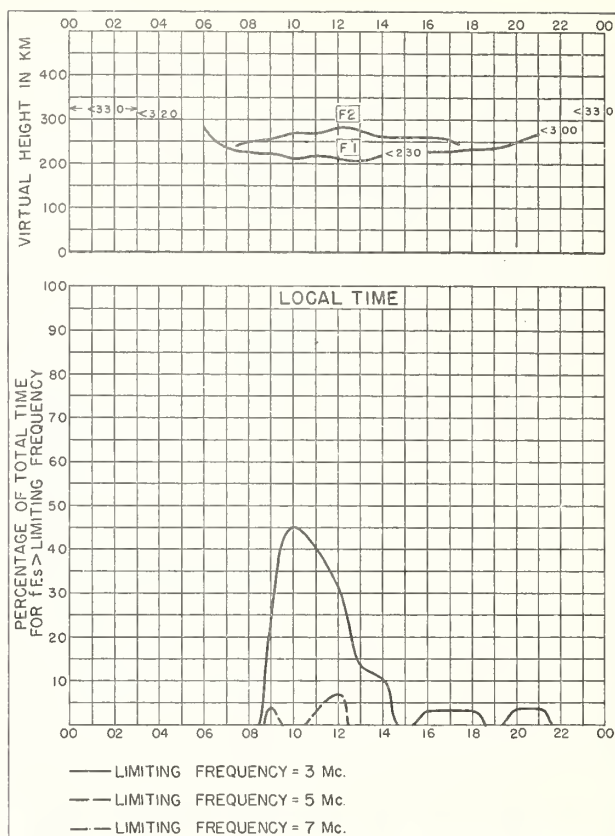


Fig. 122. POITIERS, FRANCE

MARCH 1951

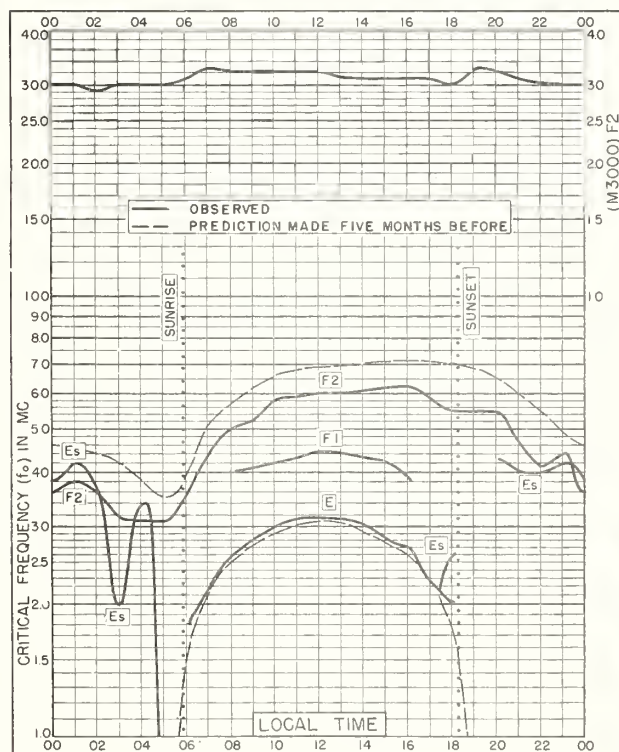


Fig. 123. MACQUARIE I.

54.5°S, 159.0°E

MARCH 1951

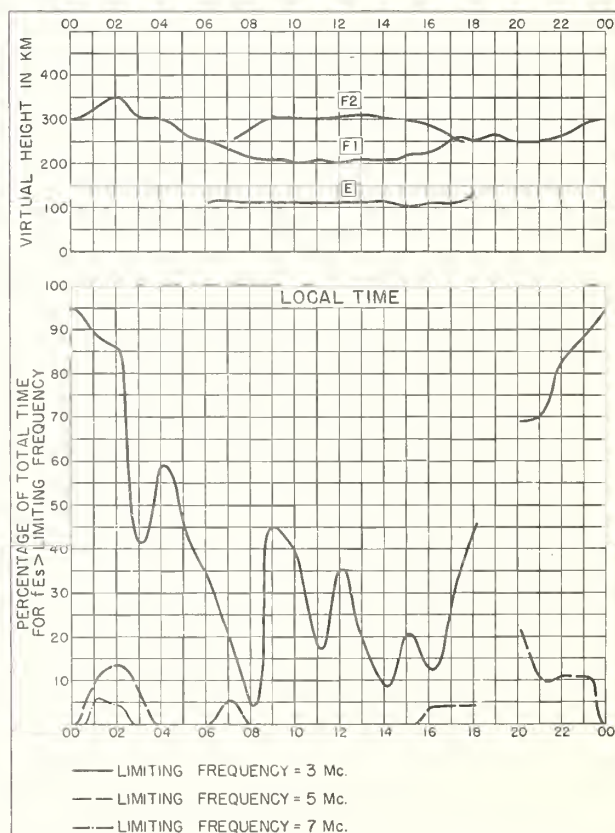


Fig. 124. MACQUARIE I.

MARCH 1951

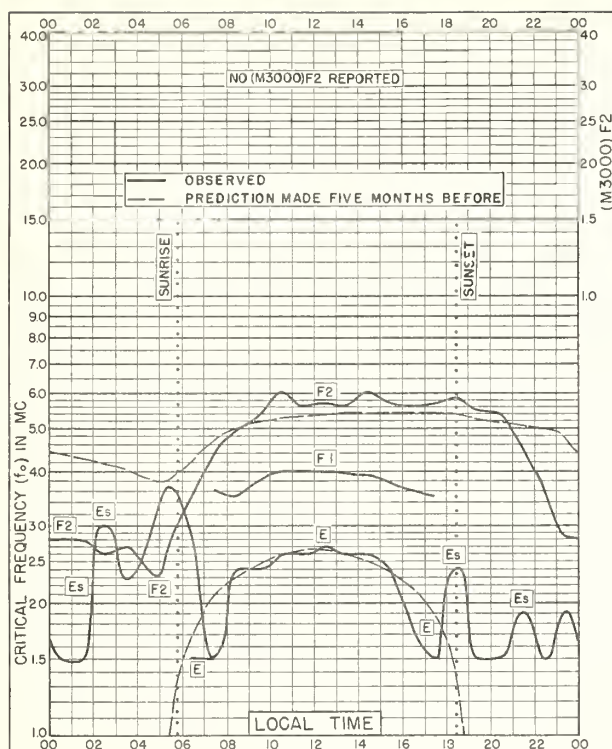


Fig. 125. TERRE ADELIE
66.8°S, 141.4°E

MARCH 1951

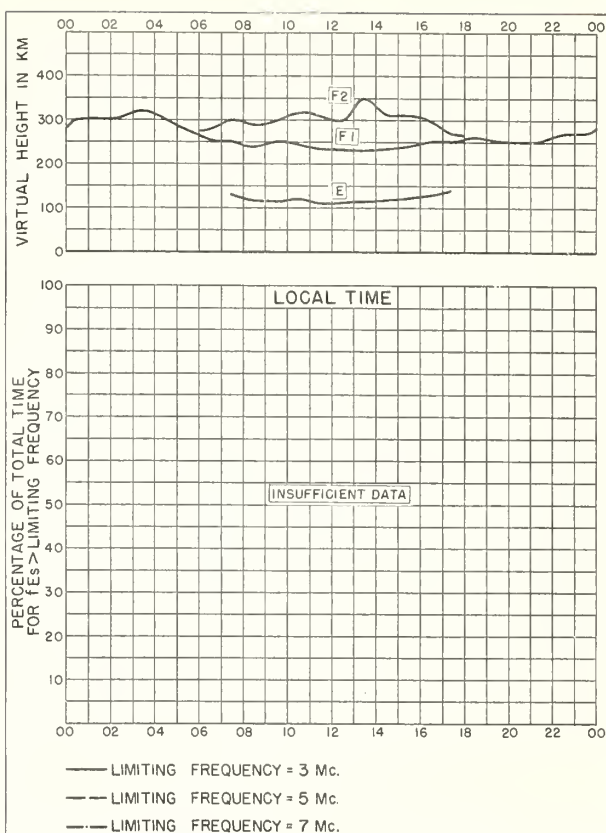


Fig. 126. TERRE ADELIE

MARCH 1951

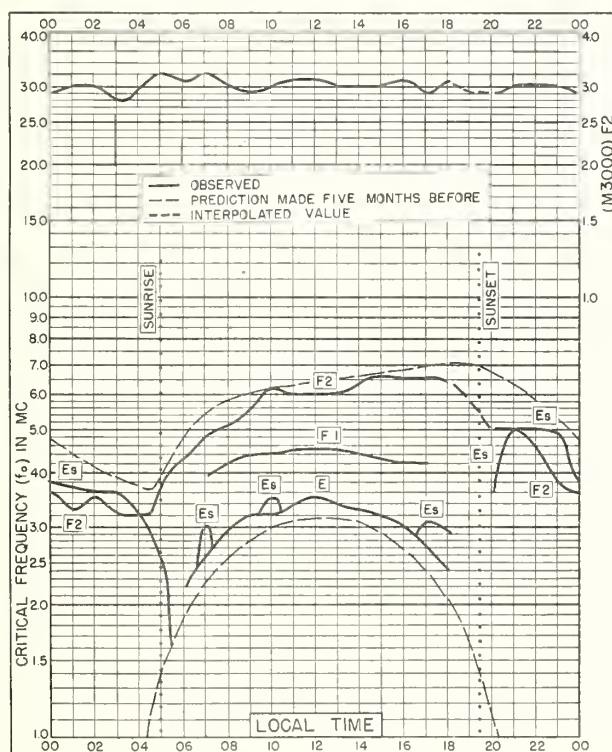


Fig. 127. MACQUARIE I
54.5°S, 159.0°E

FEBRUARY 1951

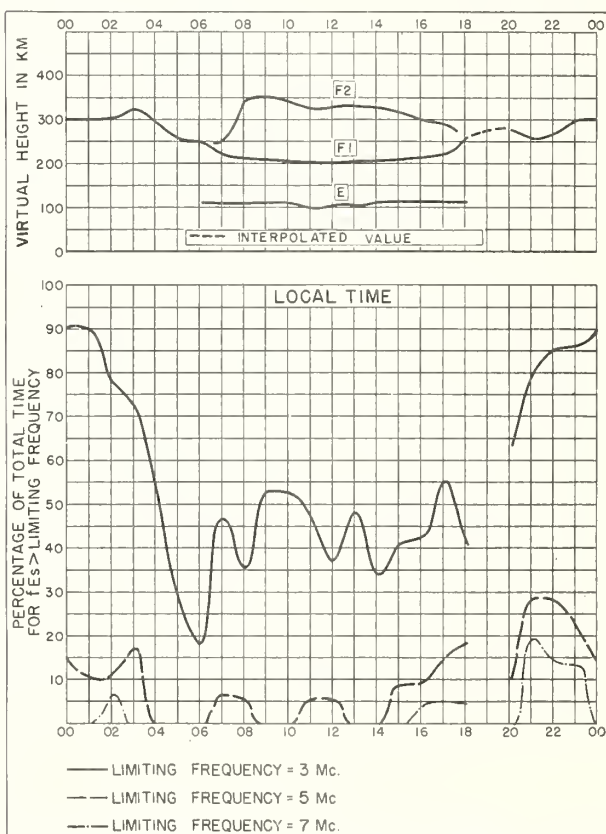


Fig. 128. MACQUARIE I.

FEBRUARY 1951

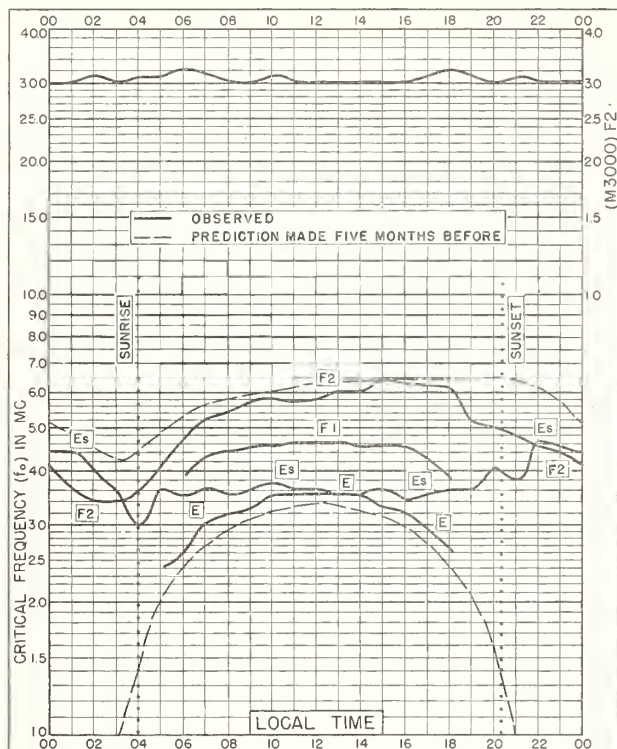


Fig 129. MACQUARIE I.
54.5°S, 159.0°E

JANUARY 1951

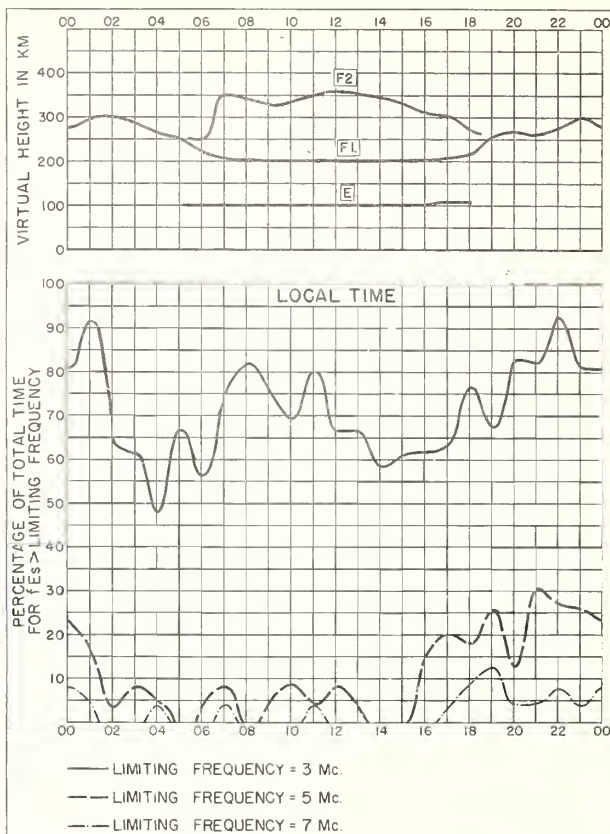


Fig 130. MACQUARIE I.

JANUARY 1951

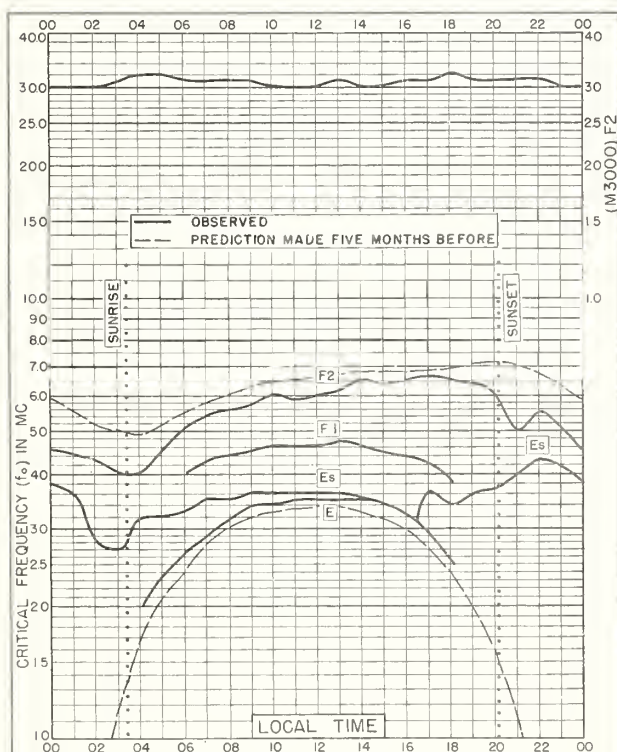


Fig 131. MACQUARIE I.
54.5°S, 159.0°E

DECEMBER 1950

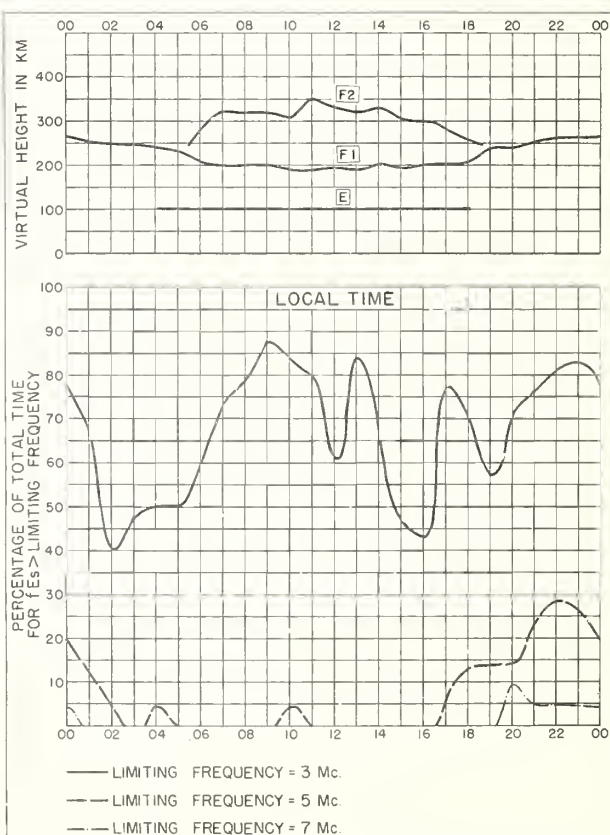


Fig 132. MACQUARIE I.

DECEMBER 1950

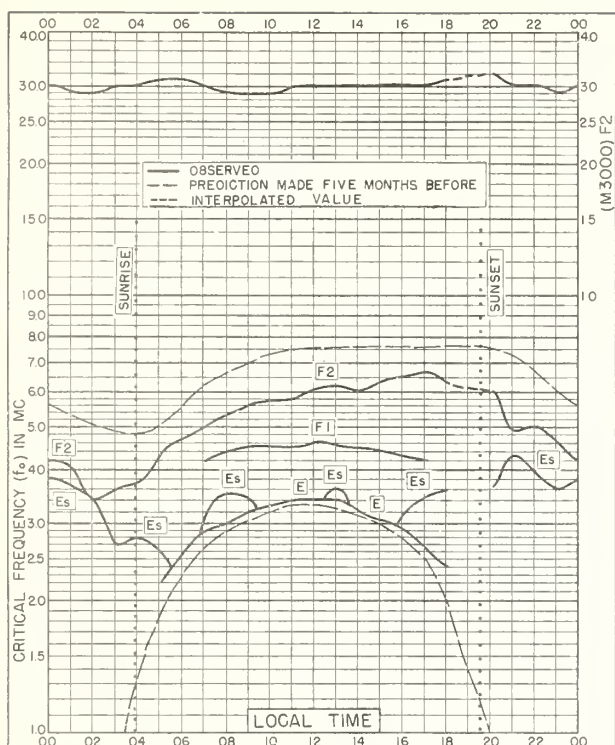


Fig 133. MACQUARIE I.
54.5°S, 159.0°E NOVEMBER 1950

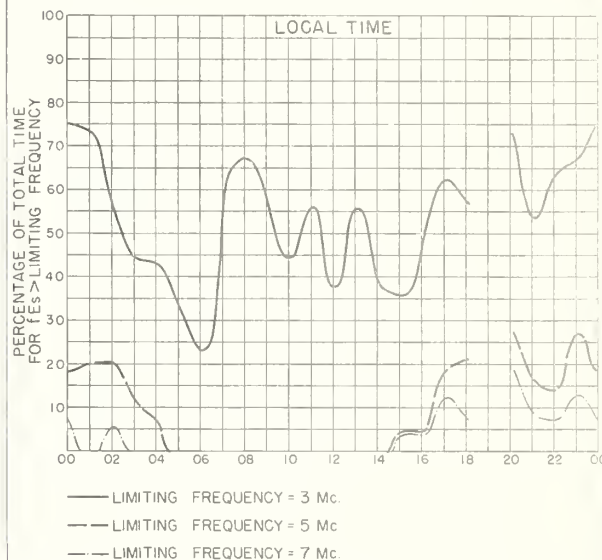
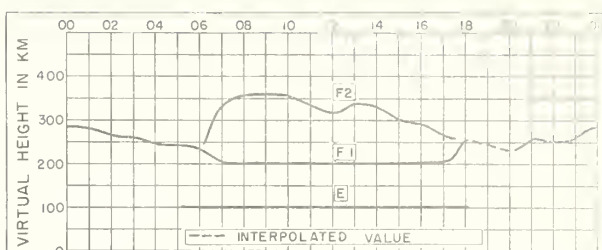


Fig 134. MACQUARIE I NOVEMBER 1950

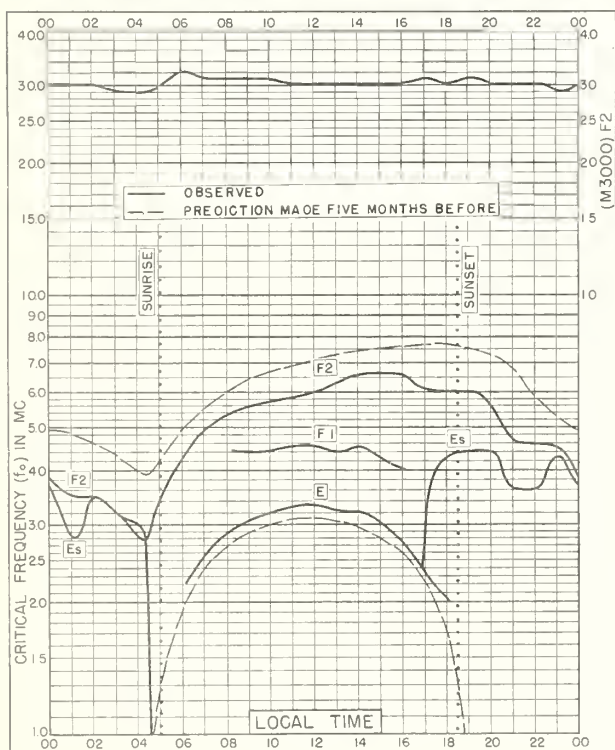


Fig. 135. MACQUARIE I.
54.5°S, 159.0°E OCTOBER 1950

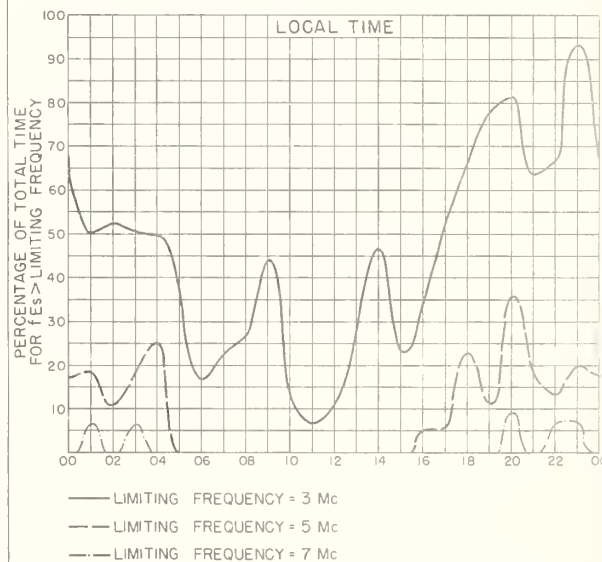
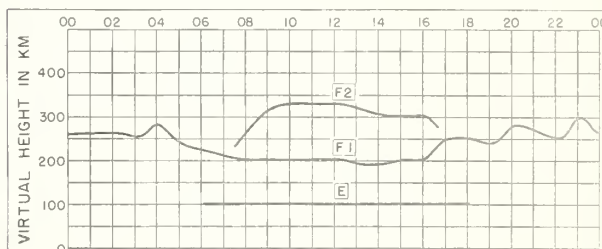


Fig. 136. MACQUARIE I. OCTOBER 1950

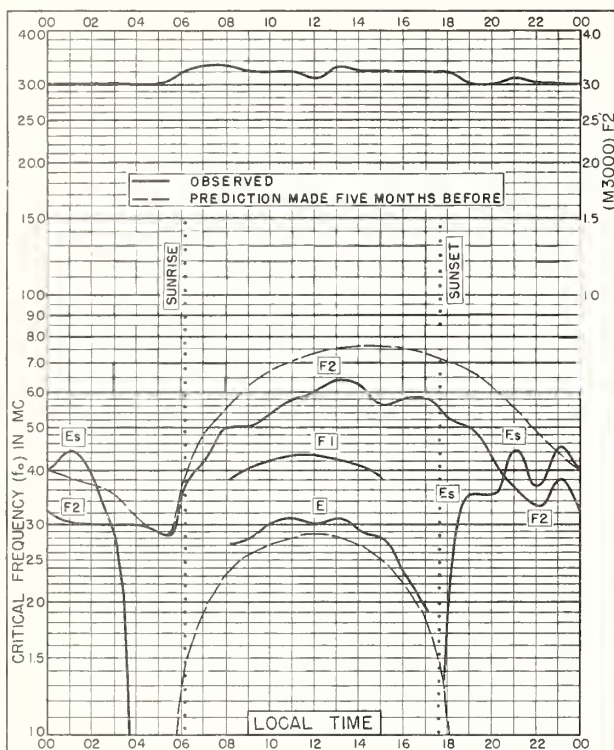


Fig 137. MACQUARIE I.
54.5°S, 159.0°E

SEPTEMBER 1950

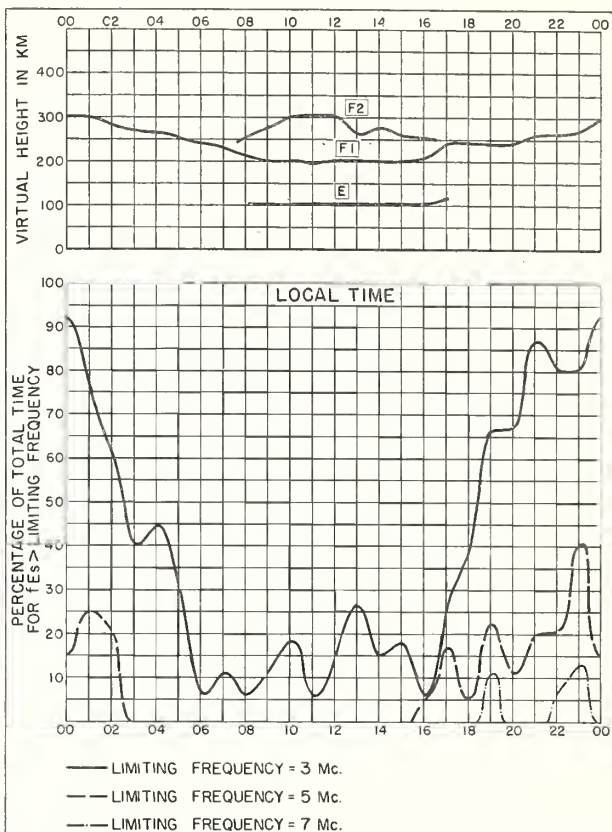


Fig 138. MACQUARIE I.

SEPTEMBER 1950

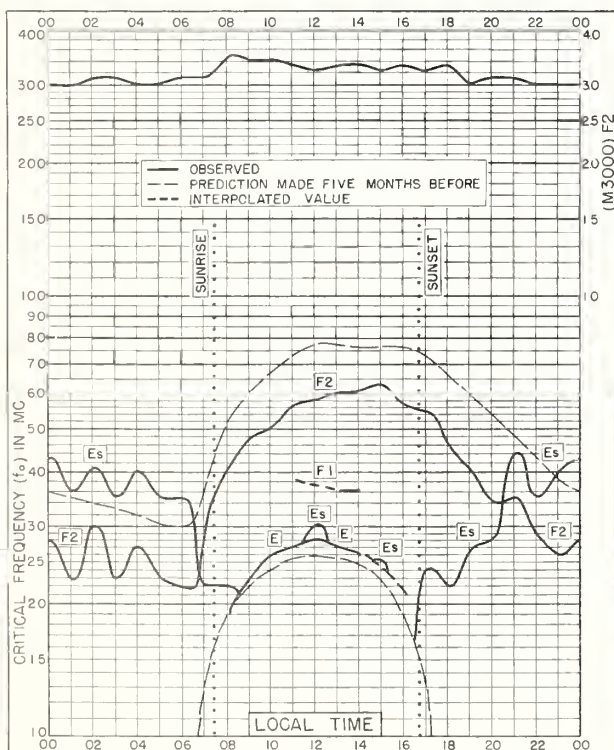


Fig 139. MACQUARIE I.
54.5°S, 159.0°E

AUGUST 1950

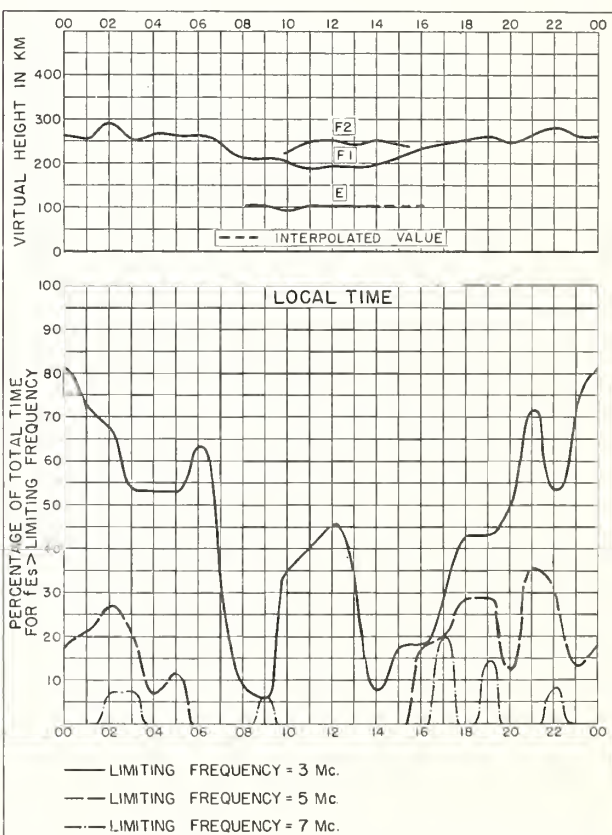
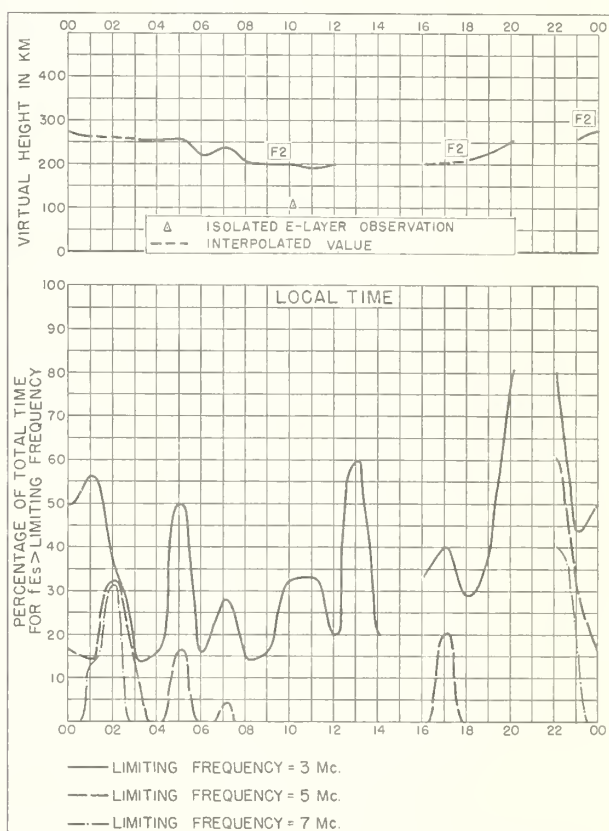
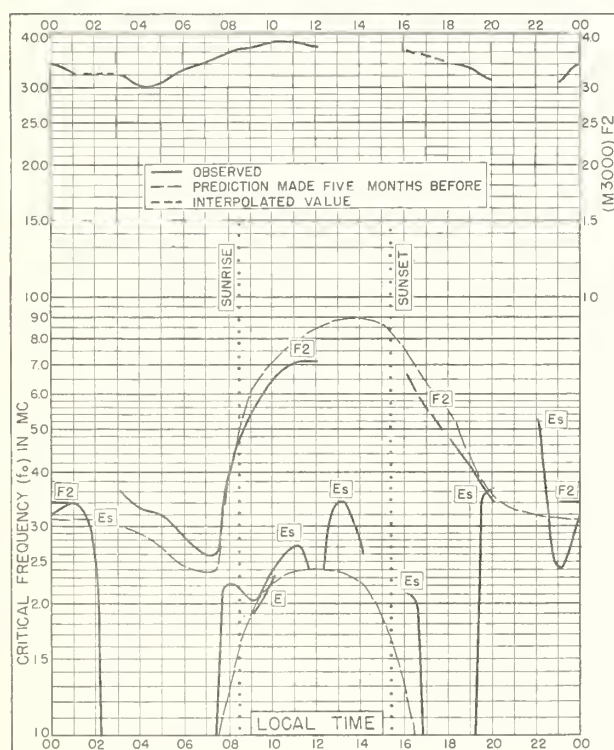
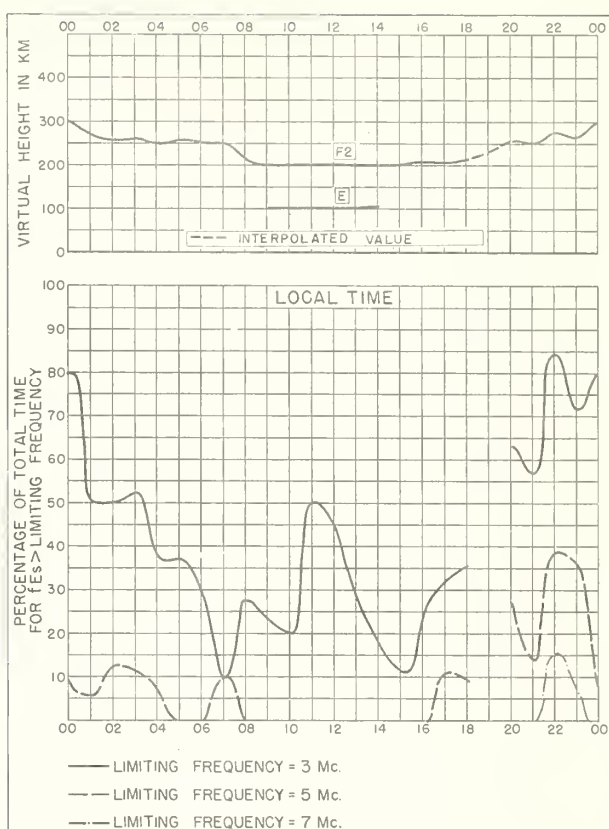
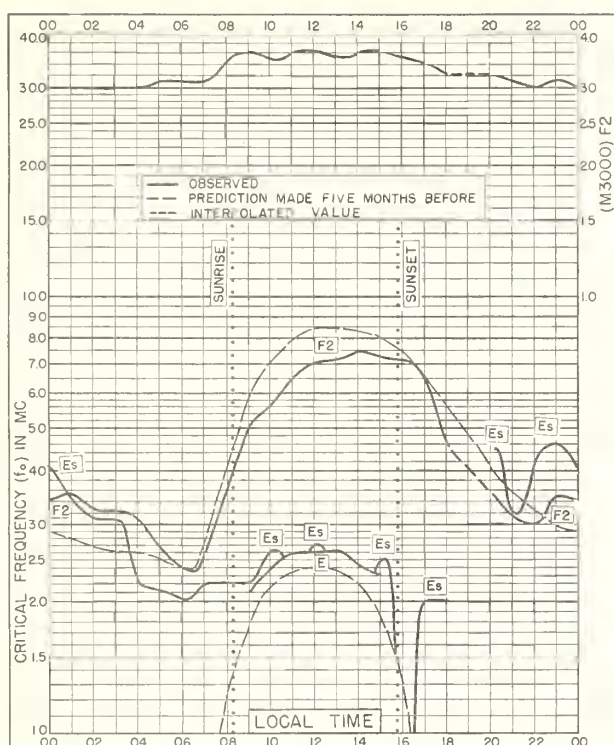


Fig 140. MACQUARIE I.

AUGUST 1950



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Weekly:

CRPL—J. Radio Propagation Forecast (of days most likely to be disturbed during following month).

Semimonthly:

CRPL—Ja. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.

Monthly:

CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11-499-, monthly supplements to TM 11-499; Dept. of the Navy, DNC 13 () series; Dept. of the Air Force, TO 16-1B-2 series.)

CRPL—F. Ionospheric Data.

*IRPL—A. Recommended Frequency Bands for Ships and Aircraft in the Atlantic and Pacific.

*IRPL—H. Frequency Guide for Operating Personnel.

Circulars of the National Bureau of Standards:

NBS Circular 462. Ionospheric Radio Propagation.

NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions.

Reports issued in past:

IRPL—C61. Report of the International Radio Propagation Conference, 17 April to 5 May 1944.

IRPL—G1 through G12. Correlation of D. F. Errors With Ionospheric Conditions.

IRPL—R. Nonscheduled reports:

R4. Methods Used by IRPL for the Prediction of Ionosphere Characteristics and Maximum Usable Frequencies.

R5. Criteria for Ionospheric Storminess.

**R6. Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R7. Second Report on Experimental Studies of Ionospheric Propagation as Applied to the Loran System.

R9. An Automatic Instantaneous Indicator of Skip Distance and MUF.

R10. A Proposal for the Use of Rockets for the Study of the Ionosphere.

**R11. A Nomographic Method for both Prediction and Observation Correlation of Ionosphere Characteristics.

**R12. Short Time Variations in Ionospheric Characteristics.

R14. A Graphical Method for Calculating Ground Reflection Coefficients.

**R15. Predicted Limits for F2-Layer Radio Transmission Throughout the Solar Cycle.

**R17. Japanese Ionospheric Data—1943.

R18. Comparison of Geomagnetic Records and North Atlantic Radio Propagation Quality Figures—October 1943 Through May 1945.

**R21. Notes on the Preparation of Skip-Distance and MUF Charts for Use by Direction-Finder Stations. (For distances out to 4000 km.)

**R23. Solar-Cycle Data for Correlation with Radio Propagation Phenomena.

**R24. Relations Between Band Width, Pulse Shape and Usefulness of Pulses in the Loran System.

**R25. The Prediction of Solar Activity as a Basis for the Prediction of Radio Propagation Phenomena.

R26. The Ionosphere as a Measure of Solar Activity.

R27. Relationships Between Radio Propagation Disturbance and Central Meridian Passage of Sunspots Grouped by Distance From Center of Disc.

**R30. Disturbance Rating in Values of IRPL Quality-Figure Scale from A. T. & T. Co. Transmission Disturbance Reports to Replace T. D. Figures as Reported.

R31. North Atlantic Radio Propagation Disturbances, October 1943 Through October 1945.

**R33. Ionospheric Data on File at IRPL.

**R34. The Interpretation of Recorded Values of fEs .

R35. Comparison of Percentage of Total Time of Second-Multiple Es Reflections and That of fEs in Excess of 3 Mc.

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